

**PETITION FOR A
BUTTE ALLUVIAL AND BEDROCK
CONTROLLED GROUNDWATER AREA**

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Prepared for:
**Montana Department of
Natural Resources and Conservation**

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1.0 Introduction

As the local public health agency, the Butte Silver Bow Health Department requests that the Montana Director of the Department of Natural Resources and Conservation (DNRC) designate the land, outlined herein, as the Butte Alluvial and Bedrock Controlled Groundwater Area (BABCDA), pursuant to Section 85-2-506(2)(g) MCA. The groundwater aquifers (bedrock and alluvial) within the BABCDA have been impacted by over a century of mining and associated activity. The United States Environmental Protection Agency (USEPA) and the Montana Department of Environmental Quality (MDEQ) have granted waivers for both the alluvial and bedrock aquifers because compliance with the requirements is technically impracticable from an engineering perspective. The petition seeks groundwater restrictions to meet the requirements of the Records of Decision or Consent Decrees for the Butte Priority Soils Operable Unit (BPSOU), Butte Mine Flooding Operable Unit (BMFOU) and the Montana Pole and Treatment Plant NPL Site (MPTP).

These restrictions include a ban on all new water supply wells including domestic, irrigation and industrial wells. It will also require abandoning existing wells which pose a threat of contaminating other waters or spreading contamination in the aquifer. Further, the petition allows an entity to apply for a waiver by demonstrating that groundwater from a new well would be of quality to meet intended use, that withdrawing water would not exacerbate existing problems, and that groundwater use would not cause contamination of other waters.

The BABCDA described in this petition is located within the cities of Butte and Walkerville, Montana in Silver Bow County. The Butte portion of the Silver Bow Creek/Butte Area NPL Site is located within the BABCDA. Operable Units of the Silver Bow Creek/Butte Area within the BABCDA include BPSOU, and BMFOU. The MPTP site is also located within the proposed BABCDA (Figure 1). Both the *USEPA Technical Impracticability (TI) Analysis* (prepared as part of the September 29, 1994 Record of Decision (ROD) for the BMFOU) and the *USEPA Alluvial Groundwater Technical Impracticability Evaluation*, February 2006 support this petition. In addition the implementation of the BABCDA will satisfy the MPTP Consent Decree (CD) requirement for groundwater well restrictions and creation of a controlled groundwater area.

The BABCDA is proposed as an institutional control to supplement the Superfund remedies for these aquifers. The purpose of the controlled groundwater area is to protect human health and/or the environment by preventing the consumption and/or spread of contamination from groundwater containing elevated concentrations of metals, arsenic or organic contamination associated with MPTP, by administering the provisions of limitations herein. The basis for this petition is that water quality in portions of the alluvial and bedrock aquifers impacted from and underlying the BPSOU, BMFOU and MPTP, based on available information, are not suitable for a specific beneficial use as defined by MCA 85-2-102(2)(a): a use of water for the benefit of the appropriator, other

persons, or the public, including but not limited to agricultural (including stock water), domestic, fish and wildlife, industrial, irrigation, mining, municipal, power, and recreation uses.

The limitations imposed by this controlled groundwater area primarily consist of a ban on new private wells. In addition, this petition seeks to abandon existing wells that contaminate other waters as defined by MCA 85-2-505 (1): The department shall require all wells producing waters that contaminate other waters to be plugged or capped.

1.1 Site Description and History

The BABCGA is located west of the Continental Divide in southwestern Montana. It occupies the northern portion of Summit Valley and is within the Butte mining district in the upper Silver Bow Creek drainage (Figures 1 and 2). Surface elevation ranges from approximately 5400 to 6400 feet above mean sea level (Figure 2). The terrain is characterized by steeper rolling hills to the north which flatten along the historic floodplain of Silver Bow Creek.

The principal geologic unit within the BABCGA is Butte Quartz Monzonite (BQM) which is overlain by alluvial deposits derived from erosion and weathering of the BQM. The BQM in the Butte Mining District was hydrothermally enriched with high grade copper and other ores. Extensive underground and open pit mining activities have been prevalent throughout the area since gold was first discovered in Butte in 1864. Underground mining began in the 1880s and by 1964 several thousand miles of underground workings had been driven into the bedrock. Estimates of the extent of mine workings range from 3,000 miles (for major shafts, levels, and drifts) to 10,000 miles for total workings on the Butte Hill.

Bedrock Aquifer

To facilitate mining activities, the naturally occurring bedrock aquifer groundwater level was lowered approximately 4,200 feet from pre-mining levels via pumping. Two distinct hydrologic systems are present within the bedrock, the East and West Camp Mine systems (Figure 1). The West Camp system is located in the west-central portion of the city of Butte and includes the Travona, Ophir, and Emma shafts and associated underground mine workings. The East Camp system is located in the east-northeast portion of the Butte mining district and consists of the Berkeley Pit and related underground mine workings. The two hydrologic systems are separated by bulkheads installed in the mine shaft workings during the late 1950s.

With the cessation of active mining in the Berkeley Pit in 1982, pumping of the system was no longer necessary and the underground mines and the Berkeley Pit began to flood. The presence of water in the mine workings during and after mining, in combination with the oxidation of the naturally occurring sulfide minerals, has resulted in generation of acidic solutions and the release of sulfides, metals and arsenic into the bedrock aquifer. The BMFOU ROD remedy permanently manages water levels in the two systems, and the Berkeley Pit will be maintained as a sink for bedrock groundwater. The BMFOU

ROD establishes two Critical Water Levels (CWLs): one for the East Camp System (which includes the Berkeley Pit) and the second for the West Camp System. The CWLs are 5410 ft and 5435 ft (USGS division), respectively.

The ROD for the BMFOU states that; ‘Institutional controls, including controls on groundwater use, shall be implemented to ensure that there is no inappropriate use of contaminated bedrock groundwater which threatens human health and/or the environment.’ A primary Institutional Control is the use of DNRC controlled groundwater area regulations. This petition requests that the DNRC issue an order prohibiting the issuance of well permits and the construction of new wells in the BABCAGA, except as permitted under conditions of this Petition.

According to the Statement of Work (SOW) attached to the BMFOU CD (page C-9): Institutional controls, including controls on groundwater use, shall be implemented to ensure that there is no inappropriate use of contaminated bedrock groundwater which threatens human health and the environment.

A Petition to Establish a Controlled Groundwater Area for the BMFOU Bedrock Groundwater is included as Exhibit 4 to the SOW. Butte-Silver Bow (“BSB”), through its Water Quality District (WQD), is a qualified petitioner under State law and has submitted the Petition to the Department of Natural Resources and Conservation (DNRC) to establish a controlled groundwater area for the bedrock groundwater system. The Settling Defendants may participate in the administrative hearing before DNRC to support approval of the Petition. The Settling Defendants shall fund implementation of any monitoring and enforcement of the water well restrictions for the Mine flooding site which are established by the DNRC.

Alluvial Aquifer

The primary surface water drainages in the Summit Valley are Silver Bow Creek (SBC) and its tributaries. As the closest source of water to the mining district, this creek was used extensively for early (1879 to 1900) mining and smelting operations. Wastes from these operations were deposited directly into SBC or in tailings impoundments located very near the creek. Periodic flooding, most notably the historic flood of 1908, distributed the wastes downstream in the SBC floodplain. This has resulted in extensive contamination of the alluvium in the drainage.

In the early 1930s, the upper portion of the historic Silver Bow Creek drainage was reworked into an open channel under the Work Progress Administration. This channel became known as the Metro Storm Drain and is underlain by milling and smelting wastes from decades of mining. As part of the remediation of contaminated alluvial ground water, a subdrain was constructed in the Metro Storm Drain to capture contaminated groundwater thus preventing it from discharging into Silver Bow Creek (Figure 1). The water captured by the subdrain is treated by lime addition at the Butte Treatment Lagoons facility and discharged back into Silver Bow Creek.

The BPSOU ROD specifies that “a controlled groundwater area will be established in the Alluvial Aquifer TI Zone to prevent domestic use of contaminated water, exacerbation or

spreading of existing contamination, or release of highly contaminated groundwater to surface water resources through irrigation.

The MPTP Superfund site is located further west along Silver Bow Creek (Figure 1), west of the I-15/90/Montana Street interchange. It is the site of an abandoned 40-acre wood treating facility that was operable from 1946 to 1984. Throughout most of its life, the facility used a solution of pentachlorophenol (PCP) mixed with petroleum-based oil, similar to diesel, to preserve wood products from degradation. Treated products included utility posts, poles and bridge timbers. The MPTP site is bordered to the north by Silver Bow Creek, while the southern border is Greenwood Avenue. Railroad right-of-way comprises the eastern border and the former Colorado Smelter Site was located along the western edge of the site. MPTP overlaps the Butte/Silver Bow Creek Superfund site to the north. Contamination at this site includes PCP, polycyclic aromatic hydrocarbons (PAHs), and dioxins and furans.

As specified on page 46 of the MPTP ROD: “The institutional controls which must be implemented for the selected remedy include adequate zoning restrictions, conservation easements, and other controls to prevent any future residential use of the site and appropriate controls to prevent any water well drilling in the contaminated groundwater plume and adjacent areas to prevent additional receptors of contaminated groundwater or an expansion of the plume. As noted above, the PRPs for the site have indicated that they are currently pursuing implementation of these controls, in coordination with the city/county government.”

Potentially responsible parties, with oversight from the MDEQ and the USEPA, have completed studies of the hydrogeology and water quality characteristic of the hydrologic systems within the BABCDA. MDEQ and USEPA have also completed independent studies. The results of these investigations and subsequent monitoring provide the analytical data and aquifer information upon which this petition is supported. The USEPA decision documents and other relevant studies are listed in the Reference section of this petition.

1.2 Technical Impracticability (TI) Waivers

The USEPA and the MDEQ have determined that the alluvial and bedrock aquifers underlying the proposed BABCDA are contaminated with concentrations of arsenic, lead, cadmium, copper, zinc at levels exceeding USEPA and MT DEQ-7 Maximum Contaminant Levels (MCLs) for groundwater. In addition, groundwater in the alluvial aquifer underlying the MPTP site is contaminated with PCP, polycyclic aromatic hydrocarbons (PAHs), and/or dioxins and furans.

TI waivers have been granted for both the alluvial and bedrock aquifer groundwater cleanup in the BPSOU and the BMFOU because compliance with the requirements is technically impracticable from an engineering perspective. TI evaluations were performed in the delineation of both TI boundaries (Figure 3). The evaluations included the development of multiple groundwater models and were subject to technical and

public review. Documentation on the evaluations can be found in *USEPA Technical Impracticability (TI) Analysis* (prepared as part of the September 29, 1994 Record of Decision (ROD) for the BMFOU) and the *USEPA Butte Priority Soils Operable Unit Final Alluvial Groundwater Technical Impracticability Evaluation*, May 2006. The following explains the basis for these TI waivers.

Groundwater underlying the MPTP site has been contaminated with PCP, PAHs, and dioxins and furans resulting from past wood-treating operations. The groundwater is treated for these constituents through the site's Water Treatment Plant, and is not considered technically impracticable to clean up. However, portions of this site are covered by the BPSOU TI waiver because of metals contamination associated with mining wastes.

1.2.1 BMFOU/Berkeley Pit Area (East Camp Mine System)

The USEPA and the MDEQ have designated the bedrock aquifer underlying the BMFOU (East and West Camp System) as a TI zone because:

From a practical standpoint, it is not feasible to use source removal to remediate the groundwater to attain the prescribed Applicable or Relevant and Appropriate Requirements (ARARs). The ARAR's for this issue are USEPA and MT DEQ-7 water standards, as described in the ROD.

There are approximately 10,000 miles of interconnecting underground mine workings within the 6.75 square mile TI zone. Engineering controls to limit or eliminate water flow into and within the bedrock aquifer by conventional or innovative methods on a site of this size and nature have never been attempted. Final ability to attain ARARs is debatable, and costs calculations range from 7 to 10 billion dollars (ROD estimate).

Lowering the groundwater level in the bedrock aquifer via pumping would exacerbate or further degrade the existing water quality by elevating acidity (lowering pH) and increasing concentrations of metals. Lowering the groundwater level exposes sulfides to oxidation and, therefore, generates acid and liberates metals.

The selected remedy for the BMFOU, maintaining the Berkeley Pit as a hydraulic sink by pumping, will effectively prevent migration of contaminated bedrock groundwater within the TI zone from impacting the Silver Bow Creek drainage and the associated alluvial aquifer.

1.2.2 West Camp System

The selected remedy for the BMFOU does not allow water levels to rise in the West Camp System above the established level of 5,435 feet msl. The USEPA and the MDEQ have identified this Critical Water Level for the protection of human health and the environment. This is accomplished by controlling the water level of this system by pumping water from the West Camp Well WCP-1 or the Travona Shaft.

1.2.3 Alluvial Aquifer

In the BPSOU ROD, the USEPA concludes that:

'Because groundwater contamination within the alluvial aquifer is expected to exceed ARARs for the long-term and because statutory and regulatory conditions for a technical impracticability waiver are met, applicable groundwater ARARs have been waived for the alluvial aquifer within the boundary of the technical impracticability (TI) zone (Figure 12-6) and wastes will be left in place with appropriate groundwater monitoring and institutional controls. The TI Evaluation is contained in the Administrative Record for the BPSOU, along with EPA's detailed response to comments on the draft TI Evaluation.' (p. 12-32)

As documented in USEPA's, *Final Technical Memorandum, Technical Impracticability Evaluation for Alluvial Groundwater - Butte Priority Soils Operable Unit - Silver Bow Creek/Butte Area NPL Site, Butte, Montana (CDM, February 2006)*, a TI waiver is applicable to the alluvial aquifer for the following reasons:

- A large volume of widely distributed mine wastes (i.e., primary sources) exists and impacts groundwater quality in the BPSOU. Given the totality of circumstances and the conditions at the BPSOU site, the ability to completely remove these primary sources of contaminants is not feasible.
- Secondary sources of contaminants to groundwater (adsorbed and precipitated metal phases within the alluvial aquifer) exist over a widely distributed area within the aquifer and cannot be completely removed from the aquifer.
- The BPSOU alluvial aquifer is heterogeneous both in terms of physical (grain size and chemical makeup of alluvial soils) and hydraulic properties, making it difficult to precisely predict the aquifer's response to source removal. The substantial weight of evidence from numerous aquifer evaluations and the scientific understanding of contaminant migration principles in heterogeneous aquifers leads to the conclusion that meeting remedial action objectives (RAOs) will not be possible in a reasonable time frame.
- The BPSOU alluvial aquifer is located in a developed urban area with municipal infrastructure, historic mining features and commercial and residential structures that limit options to remove or remediate sources of metals and arsenic to groundwater.

As a result, the BPSOU ROD includes an ARARs waiver for the alluvial aquifer. To protect human health and the environment, the ROD also requires the establishment of a controlled groundwater area:

"A controlled groundwater area shall be established for the alluvial aquifer to prevent domestic use of this water and to prevent any well development that would exacerbate or spread existing contamination. Other institutional controls, such as county laws or regulations regarding domestic use of groundwater in the area, may also be required." (p. 12-36)

2.0 Petitioner Status and Groundwater Use

Section 85-2-506(2) MCA requires that "Designation or modification of an area of controlled groundwater use may be proposed to the board by . . . petition of a state or local public health agency for identified public risks . . ." The Butte Silver Bow (BSB) Health Department is a qualified petitioner under this statute.

The vast majority of bedrock and alluvial groundwater wells present within the BABCNA are monitoring wells that are part of the ongoing and future Superfund activities. There are also private and public wells used for domestic irrigation, and industrial purposes present within the boundaries of the CGA.

3.0 Groundwater Conditions

3.1 Geology of the Alluvial Aquifer

The alluvium within the BABCNA is composed of unconsolidated, discontinuous lenses of sand, silt, clay and gravel, the weathered byproducts of the predominantly BQM bedrock. In the BABCNA, the alluvium occurs primarily within the floodplains of Silver Bow and Blacktail Creeks. The alluvial thickness ranges from greater than 300 feet near the upper Metro Storm Drain to less than 10 feet near the Lower Area One boundary (PRP group 2002, taken from TI). Some deeper alluvial deposits may be Tertiary intermontane basin deposits.

The MPTP Superfund site (Figure 1) is located over alluvium along SBC. The alluvium is composed of interlayered sand, silt and clay and underlain by relatively shallow bedrock (<50'). In this area of the basin, the bedrock interface becomes shallow, forcing groundwater to the surface. At the lower end of LAO, west of MPTP, bedrock is encountered at depths of approximately 10 feet below ground surface.

3.2 Hydrogeology of the Alluvial Aquifer

Historically, the Silver Bow Creek drainage was a lowland/wetland area. It was a groundwater discharge area for the northern portion of the valley and received groundwater/surface water inflow from east, north and south of the drainage area. Because it was both a source of water and a low spot in the valley, early mining and smelting operations were located along it. These early operations infilled the drainage, but didn't change its overall character as a topographic low in the valley. Thus, the area

still receives inflow from the north and south, although recharge from the east is intercepted by the Berkeley Pit.

The excavation of the Berkeley Pit constitutes the biggest change in the upper Silver Bow Creek flow regime since early in the mining era. The pit effectively became a ground water sink for recharge entering the drainage from the north and east and has created a ground water divide in the alluvial aquifer (Figure 4). Groundwater north and east of the divide enters the pit, while groundwater south and west continues to flow down the drainage. The location of the divide roughly parallels Continental Drive, but can be affected by precipitation, groundwater withdrawals and/or changes in mining practices upgradient of the divide.

Figure 4 is an alluvial aquifer potentiometric map using water levels collected in December 2007/January 2008. Ground water in the alluvial aquifer moves along the historic Silver Bow Creek floodplain from northeast to southwest until it exits the valley to the west. The bedrock interface becomes progressively shallower as ground water moves towards the western valley margin. Thus, ground water becomes surface water as evidenced by the wetlands and ponds that parallel the Interstate-90 corridor.

Early testing of the hydraulic properties of the alluvial aquifer in the valley was completed by Meinzer (1914) and Botz (1969). Their testing indicated that wells completed in the valley alluvium should yield 100 gpm and may yield as much as 200 gpm. Large irrigation wells have been completed in the valley alluvium with discharge rates in excess of 200 gpm (WET, 2007).

As part of the Superfund process, 27 aquifer pumping tests and 66 slug tests have been completed in alluvial wells. Of these tests, 2 aquifer pumping tests and 24 slug tests were completed in the upper Silver Bow Creek drainage. Results of the aquifer tests indicate a hydraulic conductivity of 2 to 32 ft/d, while slug test results indicate 1 to 76 ft/d with a median value of 15 ft/d (MBMG, 2004). Water and Environmental Technologies (WET) has conducted eight 24 to 92 hour aquifer tests in alluvial wells in the valley. Hydraulic conductivity values from these tests varied from 13 ft/d to 45 ft/d with a median value of 33 ft/d.

3.3 Geology of the Bedrock Aquifer

The Summit Valley is underlain by a composite intrusive igneous body, the Cretaceous Boulder Batholith, in which the dominant rock type is BQM. The intrusive mass is cut by numerous rhyolitic and porphyritic dikes and in some places overlain by extrusive Lowland Creek volcanics. The bedrock contains disseminated ore vein deposits of copper and other metals, primarily in sulfide form. The area has been and continues to be of economic value to the mining industry.

The bedrock is divided into a weathered zone and a competent bedrock zone. Some of the weathered bedrock may contain native ore that has oxidized in place over geologic time and parts may be “incapable” of producing acid rock drainage. Where present, the

weathered bedrock is 10 to 200 feet thick and consists of clay interspersed with 1 to 10-inch fragments of monzonite. Frequently, the weathered bedrock functions as a confining layer; limiting water and oxygen movement between the overlying alluvium and the deeper competent bedrock.

3.4 Hydrogeology of the Bedrock Aquifer

Because the hydraulic conductivity of the competent BQM is very low (<1 ft/day), the flow of water within the bedrock aquifer portion of the BABC GA is predominantly dependent on the extent of mine workings or secondary fractures within the BQM. Flow within the zone west of the Berkeley Pit is best characterized by a pipe network model, especially those areas associated with the Kelley Mine workings, which are hydraulically connected to the Berkeley Pit. Pipe network models are typically used to evaluate water distribution systems for cities and industrial plants. These models use the length and size of pipes and friction factors to relate flow rates to water pressure and friction losses. A pipe network model best simulates water flow in the mine workings. Areas with few workings and/or caving of workings can be best characterized by a fractured media flow model. Groundwater within the competent bedrock is primarily stored within fractures. However, the thousands of miles of open and caved underground workings significantly increase the amount of aquifer storage.

Figure 5 is a potentiometric map of ground water within the bedrock aquifer. Ground water within the East Camp, illustrated by the ground water contours, moves to the Berkeley Pit, while West Camp ground water is controlled by the West Camp pumping facilities to maintain water levels as described in Section 1.2.2 of this petition.

Based on geophysical logging data, localized fractured zones within the competent bedrock extend at least as deep as 350 feet below the weathered/competent bedrock interface. These fractures contain groundwater, most of which is encountered in the upper 1,000 feet of the bedrock. The yield from bedrock wells ranges from less than 1 gpm to more than 50 gpm. The equivalent fracture porosity of the bedrock aquifer is estimated to be 1%. Previous investigations at the site calculated fracture porosity for the bedrock in a shallow and highly fractured area of 5%. This value represents an upper limit for the site.

Hydraulic properties of the bedrock aquifer were determined from rising-head and constant discharge tests (see Section 6.4 of BMFOU RI for a complete discussion of bedrock aquifer characterization). The rising-head test data (seven wells tested) showed that hydraulic conductivity values range from 0.24 ft/d to 1 ft/d with an average of 0.38 ft/d. Twenty-four hour aquifer tests in fourteen wells completed in BQM bedrock around the margin of the Butte valley has resulted in hydraulic conductivity values ranging from 0.02 to 8.8 ft/day with a median value of 3.9 ft/d (WET, 2007).

4.0 Description of the BABCDA Boundary

The BABCDA includes the land within Silver Bow County, Montana lying in portions of Sections 7, 8, 16, 17, 18, 19, 20 and 21 of Township 3 North, Range 7 West and Sections 1, 11, 12, 13, 14, 23, and 24 of Township 3 North, Range 8 West (Figures 1 and 2). The boundary of the BABCDA is contiguous to the south with the Old Butte Landfill/Clark Tailings Controlled Groundwater Use Area. It roughly coincides with the southern boundary of the alluvial aquifer TI zone and the northern boundary of the bedrock aquifer TI zone. Major landmarks (roads) were utilized to assist in the creation of the BABCDA boundary to facilitate administration of CGA boundaries.

The alluvial portion of the BABCDA comprises approximately 8.11 square miles with a maximum vertical depth of over 300 feet northeast of the BSB City-County Shop complex, between 30 to 60 feet in the Butte Reduction Works area and less than 10 feet in the western portion of Lower Area One (LAO) where Silver Bow Creek leaves the BPSOU. The vertical extent of the BABCDA coincides with the vertical extent of the alluvial aquifer TI zone. The alluvial portion of the CGA is defined as the top of the water table to the base of the alluvial aquifer at its contact with the underlying bedrock aquifer.

The bedrock aquifer included in the BABCDA encompasses the area of underground mine workings on the Butte Hill. This bedrock portion of the BABCDA covers both the East and West Camp areas of the Butte Mining District, and is approximately 6.75 square miles. The vertical extent of the bedrock portion of the BABCDA coincides with the bedrock aquifer TI zone and is defined primarily by the extent of underground mine workings and/or extent of documented influence of mine workings on the bedrock aquifer. It is bounded by the elevation of the lowest underground mine workings which has been determined to be approximately 1,500 feet above msl. Additionally, the TI zone represents the outer boundary of the area within the cone of influence of the historically dewatered East and West Camp hydrologic systems.

5.0 Bedrock and Alluvial Aquifer Groundwater Quality

Within the BABCDA, the majority of wells are used for monitoring activities related to the Superfund sites. Monitoring well logs and analytic data are available in the various remedial investigation documents and on the Montana Bureau of Mines and Geology (MBMG) Ground Water Information Center (GWIC) website. The number of monitoring wells may be expanded or reduced in the future, as approved by USEPA and MDEQ.

Most of the monitoring wells within the alluvial and bedrock aquifers have been sampled to evaluate the quality of the water. Water quality for selected wells is shown on Figure 6 and Table I contains water quality for many monitoring wells within the proposed

controlled area. The data indicate that groundwater contamination exceeds water quality standards over broad areas and demonstrate the need for a controlled groundwater area.

6.0 Existing and Future Wells

Private and public alluvial and bedrock wells used for domestic water supply, irrigation and industrial purposes are present within the BABCDA. A well inventory is included as Appendix A and well locations with GWIC numbers are shown on Figure 7. BPSOU, BMFOU and MPTP monitoring wells were not included in the well inventory, but are shown in Table IA and IB, along with related water quality data.

Future development of domestic water supply or irrigation wells within the BABCDA is limited due to water service provided by BSB Water Utility Division of the Department of Public Works throughout most of the controlled area.

The issue of local regulation controlling groundwater use has been mentioned in USEPA's decision documents in regards to this petition. The following are excerpts from the Butte Silver Bow County Municipal Code which point out that not all groundwater use can be controlled through the enforcement of local regulations.

The Butte Silver Bow Municipal Code 13.20.210 subsection (A) states that, 'the owner of any house, building, or other property which is used for human occupancy . . . is required to connect to the water main, provided that a water main is located in the right-of-way within a distance of three hundred feet from the owner's property line.' Subsection (B) further states 'except as provided in subsection (D), the occupants of property connected to the water system may not use water provided by well for any purpose other than sprinkling or irrigation.'

Subsection (D) states 'The mandatory water system service connection provisions of this section shall not apply to any parcel of property which was exclusively served with domestic water provided by a well prior to July 31, 1992'. Subsection D (2) states 'If a well meeting the conditions of subsection (D)(1) fails to operate after July 31, 1992, a replacement well may be installed and the residents of the property may continue to use well for domestic water supply, subject to those provisions set out in subsection (D)(4)'. Subsection D (4) states 'After July 31, 1992, no parcel of property may be disconnected from the water system and served with domestic water provided by a well'.

This section of the Butte Silver Bow Municipal Code shows that although there are some provisions for the control of groundwater use by property owners within the boundary of the proposed BABCDA, the county regulations do not prevent "replacement" well development for well owners established before July 31, 1992.

USEPA and MDEQ may require additional Institutional Controls on groundwater use when the complete the Institutional Controls Management Plan (ICMP) for BPSOU. The

ICMP may seek adoption of additional Municipal Code, especially concerning existing wells that may be a risk to human health or the environment.

7.0 Proposed Groundwater Controls

The primary purpose of the BABCDA is to ensure that no new development of groundwater occurs that would utilize contaminated alluvial or bedrock groundwater. In addition, the BABCDA will protect non-contaminated water resources by requiring that existing wells, which pose a threat of contaminating other waters or spreading contamination in the aquifer, be abandoned. The following specific protective provisions (MCA 85-2-507 (4) (a) (g) are proposed.

- (1) New groundwater wells will only be permitted within the BABCDA after review and approval of the Butte-Silver Bow Board of Health acting as Water Quality District office, the USEPA and MDEQ, in compliance with the provisions below. Superfund or other environmental monitoring/treatment wells necessary for environmental cleanup purposes are allowed within the BABCDA.
- (2) An existing well used for irrigation or industrial use may be replaced at the well owner's expense, but only if the replacement irrigation or industrial well meets the criteria stated in Provision (5).
- (3) All wells used as a drinking water supply for human consumption within the BABCDA for which monitoring results establish that the MT DEQ-7 groundwater human health standards for arsenic, lead, cadmium, copper, and/or zinc, are exceeded, will cease being used for such purposes. The water user will then be provided (by the Settling Defendants under BMFOU and BPSOU consent decrees) with an approved drinking water source as determined by the Butte-Silver Bow Water Quality District until a verification sample is collected and analyzed. The process to determine if the well meets the above requirements are as follows: If the MT DEQ-7 groundwater human health standards for arsenic, lead, cadmium, copper and/or zinc are exceeded during an approved sampling event, the well will be re-tested for verification. If the verification sample also exceeds, the well will cease being used for such purposes.
- (4) The boundaries and provisions of this BABCDA may be amended, with the express written approval of the DNRC, USEPA, and MDEQ, if the groundwater quality improves or if degradation of groundwater expands.
- (5) Irrigation/Industrial Use Exemption - The Water Quality District, in conjunction with USEPA and MDEQ, may approve new or replacement wells within the BABCDA for limited irrigation or industrial use. Any proposed new well owner must supply data indicating that the uses will not be detrimental to the environment or to human health. If the Water Quality District sets criteria for irrigation use, any proposed irrigation well must meet those criteria by presenting representative data.

8.0 References

- Botz, M.K., 1969 Hydrogeology of the Upper Silver Bow Creek Drainage Area, Montana, MBMG Bulletin 75, September, 1969.
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Tables

*Petition for a Butte Bedrock and Alluvial Controlled Groundwater Area
Silver Bow County, October, 2008*

Tables

Table IA.
Ground Water Analytical Data
Upper Silver Bow Creek Drainage

GWIC Well Name	GWIC ID	Date	Arsenic (mg/l)	HCO3 (mg/l)	Calcium (mg/l)	Cadmium (mg/l)	Chloride (mg/l)	Copper (mg/l)	Iron (mg/l)	Lead (mg/l)	Manganese (mg/l)	Sulfate (mg/l)	Zinc (mg/l)
AMC-9	4646	4/26/1983	0.00330	0	375	0.32	14.3	84,500	156	0.05	21.2	1894	80,100
AMC-12	4656	4/27/1983	0.00020	0	451	0.4	23.8	2,550	21.7	0.1	182	2180	11,300
		10/12/1983	0.00500	0	450	0.29	20	2,000	20.8	0.1	129	2120	9,060
		4/25/1984	0.00060	7.3	457	0.24	21	1,830	19.6		138	2100	87,600
		7/24/1984	0.00070	16.8	474	0.25	18.7	1,720	18.1		149	2120	91,600
		10/17/1984	0.00040	0	467	0.265	19.8	2,000	18.6		142	2100	85,400
		7/30/1986	0.00020	8.8	459	0.23	22.9	1,800	14.6		139	2047	76,600
		7/29/1987	0.00060	9.5	444	0.22	22.1	2,120	13.5		138	1950	75,000
AMC-13 Clark Park	4673	7/26/1988	0.00100	8.8	424	0.24	21.3	2,410	12.6	<0.040	137	1938	76,000
		8/2/1989	0.00250	10.2	458	0.287	21.5	2,800	11.3	0.11	158.3	2060	89,400
		10/22/1992	0.00570	12.9	435	0.308	16.4	4,540	12.6	<0.003	138.3	1975	88,260
		12/22/1993	0.00070	14.2	417	0.305	18.8	4,904	13.3	<0.002	133	1918	79,060
		4/9/2003	<0.00500	17.7	271	0.267	41.3	2,520	12.4	<0.010	91.3	1260.2	59,300
		4/28/2004	<0.00500	12.7	301	0.236	46.8	3,098	11.4	<0.010	96.1	1359	59,421
		4/27/1983	0.00030	36	200	0.009	10.4	0.036	4.53	<0.040	16.3	756	2,110
AMC-15	4702	7/26/1988	0.00040	49.3	168	0.01	10.6	0.023	2.35	<0.040	13	633	2,020
		9/28/1988	0.00040	160.6	56.5	0.006	14.5	0.014	1.05	<0.040	3.42	107.7	1,270
		2/26/2001	<0.00100	99.1	142	<0.002	18.4	<0.002	4.04	<0.002	9.71	508	0,425
		4/26/1983	0.00070	80.5	75.8	0.004	5.1	<0.002	0.36	<0.040	<.001	218	<0.004
		4/16/2003	<0.00100	87	104	<0.002	7.4	0.006	0.396	<0.002	0.074	329.2	0,062
		4/24/2007	0.00712	19.3	320	0.11	<25	5,033	1.05	0.00218	16.9	1526	27,263
		5/22/2006	0.00687	22	313	0.104	<10.0	4,357	0.085	<0.002	16	1556	25,063
AMC * WELL #21	211601	4/6/2004	0.00638	10.03	308	0.522	17	4,344	3.31	<.010	21.5	1531	23,167
		7/29/1987	0.00080	250.1	110	<0.002	5.2	<0.002	0.011	<0.040	0.007	301	0.007
		9/28/1987	0.00350	228.9	91.6	0.005	4.3	0.026	0.077	<0.040	0.088	230	0.180
		10/30/1987	0.00080	197.6	119	<0.002	3.6	0.004	0.9	<0.040	0.18	304	0.011
		1/27/1988	<0.00010	190.3	109	<0.002	2.9	<0.002	4.93	<0.040	0.28	283	0.006
		3/28/1988	0.00020	222.5	128	<0.002	5.6	<0.002	0.017	<0.040	0.075	327	0.039
		6/6/1988	0.00030	236.9	131	<0.002	8.7	0.008	0.007		0.037	345	0.048
AMC * WELL #21	4993	6/6/1988	<0.00010	217.2	120	<0.002	8	0.004	0.24		0.077	309	0.028
		7/26/1988	0.00020	185.7	104	<0.002	9.4	<0.002	0.64	<0.040	0.067	258.8	0.012
		8/2/1989	0.00060	207	135	<0.002	18.5	<0.002	0.345	<0.040	0.05	355	0.009
		11/7/1989	0.00030	209	148	<0.005	23.4	<0.004	0.201	<0.050	0.042	377	0.012
		7/25/1995	0.00040	159.6	121	<0.002	85	<0.002	0.126	<0.002	0.008	275	0.011
		10/2/1995	<0.00100	134.7	116.1	<0.002	70	<0.002	0.07	<0.002	0.009	275	<0.002
		4/10/1996	<0.00100	93.2	87.7	<0.002	74.6	<0.002	1.6	<0.002	0.315	247.1	0.005
AMC-23	5018	2/13/1997	0.00190	168.8	130.6	<0.002	49.1	<0.002	0.061	<0.002	0.007	351.7	0.003
		6/12/1997	<0.00200	81	93.3	<0.002	22.03	<0.002	0.043	<0.002	0.015	219.7	0.003
		8/19/1997	<0.00100	79.3	88.54	<0.002	30.7	<0.002	3.2	<0.002	0.118	320.8	<0.002
		4/27/1983	0.00320	103	386	0.02	38.6	0.230	2.96	0.06	0.22	1380	3,520
		7/27/1983	0.00290	107.6	399	0.029	45.3	0.240	2.10	0.06	0.19	1390	3,700
		10/12/1983	0.00370	110.3	407	0.02	43	0.220	1.96	<0.040	0.18	1400	3,610
		4/25/1984	0.00390	104.9	395	0.023	36.1	0.260	2.10		0.15	1380	3,660
AMC-24	5034	7/25/1984	0.00410	106.4	430	0.021	33.4	0.230	1.85		0.14	1490	3,970
		10/17/1984	0.00320	104.2	421	0.026	39.6	0.220	2.12		0.12	1490	3,690
		7/30/1986	0.00320	124.9	396	0.02	73.2	0.180	1.76		0.11	1346	3,590
		7/29/1987	0.00300	128.1	379	0.012	75.7	0.098	2.18		0.21	1235	3,410
		7/26/1988	0.00400	135.4	370	0.02	77.5	0.130	1.67	<0.040	0.065	1230	3,400
		8/2/1989	0.00370	69.5	380	0.013	78.3	0.101	1.92	<0.040	0.08	1330	3,210
		5/22/2006	0.00497	221.6	190	0.00642	92.6	<0.002	1.84	<0.002	0.07	494	0.905
AMC* ABOVE CONT EAST	4712	4/25/2007	0.00246	221.2	197	0.00417	101	0.022	3.18	<0.0002	0.089	567	0.630
		4/27/1983	0.03900	127	138	<0.002	48	0.030	4.56	<0.040	2.35	454	0.560
		10/12/1983	0.01100	129.1	127	0.003	33.6	0.016	1.47	<0.040	1.39	408	0.350
		7/25/1984	0.02200	121	126	<0.002	22.3	0.012	4.34		2.22	436	0.440
		10/17/1984	0.00790	115.4	129	0.003	24.3	0.016	1.40		1.53	430	0.340
		7/30/1986	0.01400	109.1	154	<0.002	16.4	0.005	3.30		1.68	548	0.360
		7/29/1987	0.01200	104	155	<0.002	18.7	<0.002	3.62		1.58	544	0.320
AMC * CONT EAST	4711	7/26/1988	0.01100	140.2	161	<0.002	17.2	0.003	2.61	<0.040	1.28	566	0.013
		8/2/1989	0.00800	100	167	<0.002	17.4	<0.002	2.13	<0.040	1.21	633	0.329
		2/3/1999	0.00490	139.1	260	0.00213	33.1	<0.002	2.06	<0.002	1.26	935.4	0.389
		5/19/2006	0.00219	99.4	24.8	<0.001	17	<0.002	1.28	<0.002	1.26	280	0.431
		4/25/2007	0.00352	100.8	93.6	0.00098	20.5	0.001	1.23	<0.0002	0.971	332	0.422
		4/24/1984	0.07260	0	257	1.18	3.3	162,000	106		42	2340	133,000
		4/24/1984	0.00240	111	210	0.016	8.3	0.440	0.11		1.54	530	1,490
AMC * OBS WELL	4929	4/27/1983	0.00240	323	263	0.009	290	0.049	0.001	0.07	10.1	545	3,220
AMW-01	137596	9/14/1993				0.325		<0.010	327	<.100	62.5		108,000
MBMG AMW-1B	211600	4/6/2004	<0.01000	0	424	1.259	134	97,040	169	0.0274	274	3037	208,950
MBMG AMW-1C	211601	5/22/2006	<0.01000	0	460	1.26	107	94,417	36.4	<0.020	319	3209	215,461
ARCO/AMW-03D	137600	11/17/1999	0.00266		166	<0.002		0.021	0.026	<0.002	0.09		0.0786
ARCO/AMW-03D	137600	9/12/1993	0.00230		267	<0.002		0.015	0.205	0.0026	0.025		0.0556
ARCO/AMW-03S	137599	9/13/1993	0.00030		131	0.0414		31,465	0.177	0.0036	6.06		5,801
ARCO/AMW-03S	137599	9/23/1999	<0.00100		80.9	0.0196		19,100	1.42	0.00353	2.58		1,870
AMW-08	137598	9/8/1993	0.04010		454	0.321		6,939	724.00	0.216	90.6		133,000
AMW-09	137601	9/1/1993			266	0.206		15,155	126.00	<.100	25.4		51,010
ARCO/AMW-10 * JOHN DOWNEY 751 EVANS	137602	9/1/1993	0.01010		71.9	<0.002		0.011	0.023	<0.002	0.072		0.012</

Table IA.
Ground Water Analytical Data
Upper Silver Bow Creek Drainage

GWIC Well Name	GWIC ID	Date	Arsenic (mg/L)	HCO3 (mg/l)	Calcium (mg/l)	Cadmium (mg/l)	Chloride (mg/l)	Copper (mg/l)	Iron (mg/l)	Lead (mg/l)	Manganese (mg/l)	Sulfate (mg/l)	Zinc (mg/l)
AMW-12	137595	9/10/1993	0.00600		83.4	<0.002		0.005	0.027	<0.002	0.01		0.009
		2/22/2001	0.00474	294	95.6	<0.002	24.3	0.004	0.017	<0.002	<0.001	175	0.006
		4/20/2004	0.00355	247.7	105	<0.001	18	<0.002	0.012	<0.002	<0.001	210	0.003
		8/6/2004	0.00488	219.6	71.7	<0.001	11.2	0.002	0.019	<0.002	<0.001	152	<0.002
		5/13/2005	0.00367	214.1	113	<0.001	20.5	<0.005	0.008	<0.002	<0.001	275	0.005
ARCO/AMW-13 * WEST OF KOA NEAR BLKTAIL	137597	9/9/1993	0.01640		290	<0.002		0.002	12.92	<0.002	1.51		0.046
AMW-22	166182	5/6/2004	<0.00100	115.3	67.9	<0.001	27.9	0.013	0.030	<0.002	0.006	129	0.101
ANSELMO MINE	4768	6/23/1986	0.00480	288	302	0.023	32	0.053	<0.002		12.9	1010	21.700
		7/31/1986	0.00920	328	285	0.008	30.5	0.026	0.009		9.66	882	20.000
		9/26/1986	0.02900	276.7	306	0.063	27.1	0.044	0.063		28.4	1095	53.000
		5/31/1988	0.00860	172.9	186	0.045	21.1	1.600	0.36		9.28	617	24.900
		11/30/1988	0.00840	351	293	<0.002	29.3	0.012	0.34	<0.040	11	866	14.600
		2/27/1989	0.01400	305	300	<0.002	29.1	0.008	0.6	0.012	10.2	939	11.000
		3/30/1989	0.01000	250.3	289	0.038	27	0.028	0.11	0.069	19.3	972	26.000
		4/26/1989	0.01100	236.2	325	0.069	32	0.040	0.29	<0.040	35.3	1200	57.500
		8/4/1989	0.09400	320	320	0.005	30.2	0.023	4.02	<0.040	22.1	1060	17.870
		10/31/1989	0.00680	327	323	<0.005	30.4	0.010	0.227	<0.050	21.83	1060	16.500
		12/28/1989	0.00960	312	321	<0.005	31.2	0.024	0.169	0.05	16.56	1000	9.620
		5/1/1990	0.00690	313	310	0.011	29.4	<0.004	0.126	0.06	16.57	957	11.300
		10/13/1992	0.00390	300	250	0.0164	30.8	0.050	0.013	<0.003	12	744	13.340
		12/21/1992	0.01210	332	266	0.0091	32.2	0.028	0.087	<0.003	9.32	758	8.745
		7/27/1993	0.00890	329	257	<0.006	33.7	0.020	0.1	<0.004	10.3	731	8.990
		3/22/2000	0.10900	317.2	334	<0.002	34.957	0.004	27.3	<0.002	14.7	1079.1	7.340
		3/22/2000	0.12500	335.5	331	<0.002	36.023	<0.002	29.8	<0.002	14.6	1104	7.190
		6/26/2001	0.01860	280.6	317	0.0315	35.8	0.019	21.5	<0.010	22.7	1062	24.000
		7/11/2002	0.07440	366	332	<0.002	34.9	0.012	31.6	<0.010	15	1068	6.550
		4/8/2003	0.08920	214.7	358	0.026	30.4	0.012	36.7	<0.010	33.2	1373	32.000
		11/19/2003	0.20700	431.9	372	0.00265	33.9	0.009	50.4	<0.010	16.8	1230	8.118
		4/27/2004	0.27900	297.7	373	0.0023	32.7	<0.005	53.8	<0.010	17.5	1206	5.729
		10/22/2004	0.27900	281.8	367	<0.005	28	<0.010	51.5	<0.010	17.3	1190	7.314
		6/8/2005	0.10600	304	287	0.0143	33.7	0.013	14.7	<0.002	13.7	871	17.251
		6/10/2005	0.26400	320	349	0.00421	34.9	<0.002	37.1	<0.002	13.8	1054	7.915
		12/30/2005	0.26200	274.9	333	0.00153	33.2	0.008	38.6	<0.010	13.6	1034	4.853
		12/30/2005	0.26700	286.29	329	<0.001	31.7	<0.005	39.7	<0.010	12.6	1006	4.361
		4/20/2006	0.02610	286.1	341	0.0114	32	0.004	30.5	<0.002	19.6	1112	16.086
		4/20/2006	0.02110	291.2	312	0.011	32.8	0.002	29.2	<0.002	18.4	1122	14.931
		5/2/2007	0.21500	314.3	316	0.000722	36.4	0.007	33.1	<0.010	11.9	1081	4.389
		5/2/2007	0.23800	308.7	344	0.000696	34.8	0.011	33.8	0.00738	13	1032	4.505
ARCO	125785	11/18/1991	0.03500	168.1	476	0.05	77.2	0.076	5.71	0.065	6.65	1800	0.495
		11/18/1991	0.26000	0	445	0.81	38.3	31.000	407	0.176	152	3215	277.000
MBMG AW3	130887	11/19/1991	0.25900	0	410	0.762	38.4	26.400	396	0.121	149	3179	267.000
		Belmont #1	9/10/1996	0.00540	79.5	63	0.0113	9	0.195	8.7	0.1498	3.7	284
BELMONT MINE	4634	4/28/1983	0.00230	2.9	289	0.23	31.2	2.700	1.58	<0.040	12.2	1200	36.800
		10/13/1983	0.00500		299	0.21		3.945	4.42	<0.040	11.5		3.320
		4/26/1984	8.42000		414	0.94		36.400	1620		129		446.000
		7/26/1984	0.05700	52.7	272	0.17	24.1	1.360	4.06		9.92	1040	30.800
		10/18/1984	5.10000	0	310	0.65	31	6.430	748		57.6	4100	264.000
		2/22/1986	0.04300	27	273	0.096	26.9	0.530	0.26		8.95	1020	21.200
		5/29/1986	0.00520	31.7	236	0.11	25.5	0.260	1.06		8.46	907	23.700
		6/26/1986	0.00850	76.1	236	0.14	24.5	0.860	1.98		8.42	886	22.800
		7/31/1986	0.01200	59	251	0.1	23.2	0.900	2.05		9	948	23.000
		9/26/1986	0.00840	66.7	220	0.11	22.8	0.400	1.76		7.9	826	20.900
		5/31/1988	0.00800	114.7	220	0.11	22.4	0.550	1.24		7.35	792	23.600
		7/28/1988	0.01300	87.8	217	0.1	23.7	0.480	2.22	<0.040	7.66	794	21.400
		11/30/1988	0.00820	71.4	205	0.076	22.9	0.065	0.63	<0.040	7.08	765	17.300
		2/27/1989	0.01700	37.1	242	0.075	22.7	0.590	0.68	0.019	7.65	906	20.900
		3/30/1989	0.01300	38.2	238	0.079	22.7	0.520	0.64	0.022	7.94	894	20.100
		4/26/1989	0.01600	30.7	244	0.07	23.5	0.530	0.39	<0.040	8.19	909	21.100
		8/4/1989	0.01200	47.5	242	0.075	23.1	0.611	0.84	<0.040	8.48	955	21.610
		10/13/1992	0.02610	83.4	218	0.186	26.3	0.477	4.19	0.0057	8.9	826	24.510
		12/21/1992	0.01080	59.8	211	0.166	18.8	0.240	0.445	0.0036	7.7	810	20.160
		6/25/1993	0.01230	56.4	189	0.244	18.3	0.689	0.804	<0.005	0.004	728	24.850
		6/25/1993	0.01040	47	185	0.295	17.3	0.808	0.926	<0.005	8.4	736	28.250
		6/25/1993	0.01100	47.5	203	0.22	18.3	0.559	0.37	<0.005	8.9	777	24.260
		7/27/1993	0.01410	66.1	204	0.173	20.2	0.519	0.843	0.0057	8	761	23.170
		12/21/1993	0.00130	55.5	216	0.135	24.1	0.122	0.698	<0.002	9.04	824	20.078
		8/29/1994	0.00930	51	215	0.101	20	0.242	0.34	<0.008	8.56	800	19.100
		3/23/1995	0.00290	39.5	218	0.0922	20	0.107	0.04	<0.002	7.8	850	18.000
BMF * WELL 96-01D	158224	12/3/1996	0.07500	223	111.1	<0.002	10.8	<0.002	0.636	<0.002	0.973	450	0.005
		2/11/1997	0.02310	193.2	89.4	<0.002	52.5	0.004	<.003	<0.002	0.423	416.4	0.008
		3/18/1997	0.05140	205.8	104.3	<0.002	60.6	<0.002	0.704	<0.002	1.05	492.8	<0.002
		6/12/1997	0.01650	197.64	100.3	<0.002	67.5	0.003	0.028	<0.002	0.465	490.3	<0.002
		8/19/1997	0.01660	286.7	112.3	<0.002	53.6	<0.002	0.024	<0.002	0.939	406.6	<0.002
		1/6/1999	0.10400	317.2	166	<0.002	38.4	<0.002	1.42	<0.002			

Table IA.
Ground Water Analytical Data
Upper Silver Bow Creek Drainage

GWIC Well Name	GWIC ID	Date	Arsenic (mg/l)	HCO3 (mg/l)	Calcium (mg/l)	Cadmium (mg/l)	Chloride (mg/l)	Copper (mg/l)	Iron (mg/l)	Lead (mg/l)	Manganese (mg/l)	Sulfate (mg/l)	Zinc (mg/l)
BMF * WELL 96-01S	158225	12/4/1996	0.00490	116.6	120	<0.002	<.5	<0.002	0.014	<0.002	0.01	370.5	0.033
		2/11/1997	0.00480	146.4	130.4	<0.002	57.6	0.002	0.045	<0.002	<.002	395.3	0.008
		6/12/1997	0.00580	151.28	147.3	<0.002	62.7	0.002	0.013	<0.002	0.005	468.6	<0.002
		8/19/1997	0.00610	240.3	141.1	<0.002	48.8	<0.002	<.003	<0.002	<.002	453.3	<0.002
		3/18/1998	0.00440	152.1	152.7	<0.002	43.9	<0.002	0.007	<0.002	0.035	550.1	<0.002
		1/6/1999	0.00569	198.9	166	<0.002	44.7	<0.002	0.015	<0.002	0.002	523.8	0.007
		1/1/2000	0.00540	202.03	169	<0.002	53.08	<0.002	<.025	<0.002	<.005	549.1	0.004
		6/18/2001	<0.00100	170.8	169	<0.002	49.1	<0.002	<.005	<0.002	<.001	547	<0.002
		12/5/2001	0.00556	240.3	169	<0.002	45.7	0.002	0.029	<0.002	<.001	546	0.003
		7/25/2002	0.00503	218.6	174	<0.002	40	<0.010	0.021	<0.010	<.001	635	<0.010
		5/3/2004	0.00551	300.1	162	<0.001	31.9	0.010	0.038	<0.002	0.009	490	0.033
BMF * WELL 96-02	158226	12/5/1996	0.00610	182.5	138.2	<0.002	<.5	<0.002	0.446	<0.002	0.266	410.1	0.005
		2/13/1997	0.00660	186.4	159.1	<0.002	48.8	<0.002	0.437	<0.002	0.256	419.5	0.003
		6/12/1997	0.00740	182	171	<0.002	62.8	<0.002	0.462	<0.002	0.245	499.2	<0.002
		8/19/1997	0.00790	274.5	176.3	<0.002	50.6	<0.002	0.496	<0.002	0.311	456.5	<0.002
		1/6/1999	0.00782	198.9	172	<0.002	52.1	<0.002	0.53	<0.002	0.302	459.2	0.007
		12/5/2001	0.00685	201.3	165	<0.002	53.8	<0.002	0.56	<0.002	0.291	457	<0.002
BMF * WELL 96-03	158231	12/6/1996	0.00390	122.5	103.2	<0.002	52.8	<0.002	0.023	<0.002	0.294	289.5	0.069
		2/13/1997	0.00380	112.2	117.5	<0.002	48.4	<0.002	0.029	<0.002	0.213	373	0.002
		6/12/1997	0.00400	113.46	115.9	<0.002	54.3	<0.002	<.003	<0.002	0.17	372.3	<0.002
		8/19/1997	0.00370	158.6	118.3	<0.002	41.3	<0.002	0.009	<0.002	0.319	316.5	<0.002
		12/29/1997	0.0029	297.7	150.7	<0.002		0.0028	0.011	<0.002	0.23		3.623
BMF * WELL 96-04	164443	3/19/1998	0.0045	222	102.5	<0.002	24.4	<0.002	0.044	<0.002	0.017	227.4	0.008
		1/12/2000	0.0037	313.3	112	<0.002	25.2	0.0068	<.025	<0.002	<.005	220.5	0.004
		6/12/2000	0.0048	313.8	117	<0.002	24.3	0.00201	0.012	<0.002	0.003	208	0.006
		1/8/2001	0.00469	320.6	117	<0.002	23.5	0.00512	0.013	<0.010	0.002	203	0.006
		6/25/2001	0.00536	335.3	115	<0.002	24.7	<0.002	0.025	<0.002	<.001	208	0.003
		12/6/2001	0.0056	353.8	113	<0.002	25.7	0.0031	0.025	<0.002	0.002	207	0.002
		7/29/2002	0.00541	354.6	111	<0.002	25.6	<0.005	0.019	<0.010	0.004	192	0.004
		5/2/2003	0.0133	330.9	112	<0.001	26	0.00626	0.035	<0.002	0.005	192	0.008
		5/3/2004	0.0057	326.6	120	<0.001	27.3	0.00726	0.024	<0.002	0.054	190	0.108
		6/6/2005	0.00561	341.6	119	<0.001	28.6	<0.002	0.149	<0.002	0.032	193	0.039
		4/18/2006	0.00668	321.8	114	<0.001	27.3	0.00882	0.02	<0.002	0.011	186	0.096
BMF * WELL GS-08	890529	5/9/1989	0.00430	110.3	152	0.008	44.4	0.050	0.31	0.017	0.17	589	0.590
		5/9/1989	0.00470		145	0.008		0.053	0.5	0.0214	0.083		0.520
		8/6/2004	0.00410	102.5	162	0.00451	37.1	0.018	0.025	<0.002	0.01	557	0.484
BMF * WELL GS-09	890532	5/9/1989	0.00240	32.5	507	0.051	18.1	3.850	0.018	0.07	0.62	2220	19.300
		5/9/1989	0.00300		536	0.063		4.090	0.48	0.168	0.66		20.500
		8/6/2004	0.00559	62.9	508	0.129	70.7	11.422	0.182	<0.010	40.5	1948	42.806
		7/25/1988	0.00490	0	420	0.14	52.1	0.140	53	0.04	21.7	1484	1.890
BMF GS-10A(D)	4668	10/4/1988	0.00440	0	495	0.22	29.1	1.060	113	0.1	104	2340	66.800
		5/9/1989	0.00820	0	482	0.26	31.5	0.170	126	0.092	37.1	1860	46.600
		2/23/2001	<0.01000	0	232	0.175	38.5	6.490	43.7	<0.020	22.3	949	32.200
		7/25/1988	0.00790	0	214	0.15	67.4	10.100	104	0.04	12.8	994	29.500
BMF GS-10B	4666	10/4/1988	0.01500	0	256	0.18	73.5	4.880	131	0.07	15.5	1141	36.200
		5/9/1989	0.24800		255	0.19		6.480	156	0.337	16.1		37.700
		5/9/1999	0.01100	0	256	0.19	71.8	3.230	132	0.0562	15.7	1147	36.000
		5/9/1989	0.00050	137.1	344	0.28	49	12.500	0.43	0.552	45	1550	54.000
BMF * WELL GS-11	890538	5/9/1989	0.00590		368	0.3		14.400	3.25	0.867	50.3		60.300
		8/6/2004	<0.00500	194	315	0.0894	73.7	15.063	3.29	0.401	33.2	1031	36.541
		7/25/1988	0.00370	122.2	68.8	0.017	31.5	0.039	0.01	<0.040	1.35	150.2	2.660
BMF * WELL GS-12	5007	10/4/1988	0.00390	126.1	64.8	0.019	27.9	0.030	0.018	0.04	1.86	143.6	1.630
		5/11/1989	0.00320	132	76.2	0.021	38.4	0.017	<.002		2.01	159	1.850
		5/11/1989	0.00950		72.4	0.013			0.054	1.54	1.96		2.040
		6/7/1988	0.00520	209.8	188	0.034	25	0.540	0.16		45.5	505	12.500
		7/25/1988	0.00400	210.8	187	0.038	24.3	0.890	0.044	0.05	46.3	508	12.600
BMF * WELL GS-13A	5004	10/4/1988	0.03300	215.2	234	0.049	24.3	1.200	1.21	0.4	65.1	705	15.500
		5/11/1989	0.00720	218	243	0.046	24.3	0.630	0.047	0.099	65.3	674	16.410
		5/11/1989	0.75300		237	0.044		4.190	32	7.78	81.9		28.800
		8/16/1989	0.00760	190	241	0.041	22.3	0.594	0.06	<0.040	71.8	768	16.650
		11/9/1989	0.00940	176	289	0.043	25.3	0.645	0.025	<0.050	91.9	896	16.800
BMF * WELL GS-13B	5002	7/25/1988	0.00020	129.3	51.4	<0.002	22.3	0.004	0.3	<0.040	0.58	175.5	0.017
		10/4/1988	0.00030	128.8	48.3	<0.002	23.1	<0.002	0.32	0.05	0.61	177.1	0.031
		5/11/1989	0.00670		147	<0.002		0.049	19	0.038	6.97		0.340
		5/12/1989	0.00380	233.3	143	<0.002	26.3	<0.002	2.83	0.0043	6.63	350	0.260
BMF * WELL GS-14	150375	3/22/2001	0.00187	389	355	0.00585	29.8	0.037	0.100	<0.002	0.064	1411	0.887
BMF * WELL GS-19C	126150	10/5/1994	0.00310	110.3	58.1	0.0287	40	0.004	0.074	<0.002	13.8	250	3.012
BMF * WELL GS-19D	126151	10/10/1994	0.00290	111.8	63.7	0.0327	42.5	0.336	0.009	<0.002	14.4	250	3.623
BMF * WELL GS-28	150389	2/23/2001	0.00189	96.1	93.1	<0.002	10.9	0.003	0.018	<0.002	0.049	353	0.147
BMF * WELL GS-31D	150393	2/23/2001	0.01650	249	338	0.00295	32.8	0.007	0.017	<0.002	0.011	1261	0.165
BMF * WELL GS-31S	150392	2/23/2001	0.00118	121.5	<.03	<0.002	32.4	0.002	<.005	<0.002	<.001	500	0.105
BMF GS-33	150395	2/22/2001	0.01400	311.3	109	0.00444	56.5	0.089	0.007	<0.002	0.038	239	0.262
BMF GS-41D	150402	3/2/2001	<0.										

Table IA.
Ground Water Analytical Data
Upper Silver Bow Creek Drainage

GWIC Well Name	GWIC ID	Date	Arsenic (mg/L)	HCO3 (mg/l)	Calcium (mg/l)	Cadmium (mg/l)	Chloride (mg/l)	Copper (mg/l)	Iron (mg/l)	Lead (mg/l)	Manganese (mg/l)	Sulfate (mg/l)	Zinc (mg/l)
BMF GS-41S	150401	4/11/2003	0.05370	0	425	1.75	<12.6	538.000	902	0.081	77.2	6204	277.000
		11/10/2003	0.06710	0	404.2	1.434	132	<0.020	915	0.0746	65.6	5301	234.931
		4/6/2004	0.07610	0	444	2.227	187	634.636	900	0.0789	80.9	6755	325.832
		5/16/2005	0.09880	0	474	3.692	153	918.660	1373	0.0911	104	8082	520.593
		5/4/2006	0.33100	0	429	3.371	198	887.814	1280	0.0915	97	8322	497.859
BMF GS-42D	150405	2/21/2001	<0.10000	0	455	1.2	56.3	102.000	0.72	<0.021	262	3058	214.000
		5/17/2006	0.00797	0	452	1.08	62	88.236	0.47	0.0156	210	2561	170.067
BMF GS-42S	150404	5/17/2006	<0.01000	0	423	0.91	162	324.722	1227	<0.020	36.8	5441	208.713
BMF GS-44D	150410	2/21/2001	<0.01000	26.6	55.2	0.0528	19.9	1.990	0.034	<0.002	13.2	242	11.400
BMF GS-44D Redrill	150411	4/10/2003	0.00111	15.1	43.5	0.0452	17.3	1.920	0.079	<0.002	10.7	203	9.400
		11/7/2003	<0.00100	13.1	44.3	0.0416	16.5	1.777	0.032	<0.002	10.2	213	7.258
		4/13/2004	<0.00100	14.4	42.8	0.0445	15	1.858	0.038	<0.002	11	204	9.272
		5/17/2005	0.00116	12.8	37.3	0.034	12.8	1.434	0.048	<0.002	8.77	178	7.529
		5/3/2006	0.00131	13.42	33.6	0.0301	11	1.250	0.022	<0.002	7.93	167	6.697
GS-44S	150409	2/26/2001	<0.01000	10.5	24.5	0.0228	23.2	1.260	0.028	<0.020	3.5	76.8	5.380
		4/10/2003	<0.00500	22.4	9.83	0.00574	5	0.269	0.007	<0.010	0.945	38.6	1.400
		11/7/2003	<0.00100	15.9	5.73	0.00323	4.92	0.156	0.007	<0.002	0.532	25	0.872
		4/13/2004	<0.00100	19	5.94	0.00254	4.41	0.112	0.013	<0.002	0.605	17.2	0.798
		5/6/2004	<0.00100	20.9	6.09	0.00317	5.6	0.114	<0.005	<0.002	0.614	17.3	0.601
GS-45	137594	9/13/1993	0.0950		375	0.933		269.000	1686.000	0.278	81.2		214.000
BMF LP-01	122391	4/25/1991	0.0060	31	385.5	0.274	17	2.010	0.199	0.05	0.045	1383	17.210
		5/20/1992	0.0060	25.4	396	0.301	13.5	3.010	0.084	0.34	0.024	1407	15.600
BMF MF-01	5038	6/17/1986	0.00700	115	38.9	<0.002	22.3	0.040	<0.002		0.031	54.3	0.120
		4/27/1988	0.00790	117.1	32.5	<0.002	15.1	0.073	0.027		0.028	44.5	0.120
		6/9/1988	0.00790	116.4	32.7	0.005	15.9	0.080	0.120		0.16	49.2	0.400
		7/21/1988	0.04500	107.5	33.4	0.008	16.9	1.020	2.610	0.28	0.33	41.3	0.610
		8/2/1988	0.01040	111.8	34.8	0.005	16.8	0.051	0.019	<0.040	0.065	55.3	0.260
		10/4/1988	0.00440	119.2	34.4	0.016	17.6	0.078	0.099	0.14	0.26	44.1	0.220
		Total	0.01300	113.7	33	<0.002	16.5	0.096	0.038	<0.040	0.24	47	0.280
BMF MF-02	5043	5/11/1989	0.09800		68.6	0.01		3.060	17.400	0.342	1.14		2.140
		6/17/1986	0.00620	967	403	<0.002	117	<0.002	17.1		1.11	1532	0.380
		4/27/1988	0.48500	760	288	<0.002	48.9	0.002	31.100		4.19	779	0.390
		6/13/1988	0.04500	937	420	<0.002	105	<0.002	25.500		1.47	1417	0.350
		7/21/1988	0.17800	1052	374	<0.002	10.4	0.500	23.600	0.15	0.56	1143	0.560
		8/2/1988	0.00770	112.2	76.2	<0.002	16.8	0.045	0.270	<0.040	0.13	46.3	0.370
		10/4/1988	0.00540	1044	389	0.003	98.4	0.018	18.200	<0.040	0.61	1348	0.190
BMF MF-03	5023	5/9/1989	0.01400	1012	339	<0.002	90.2	<0.002	2.610	0.038	0.61	1160	0.200
		Total	0.12600		368	0.005		1.170	18.400	0.624	0.98		1.630
		6/18/1986	0.00930	273	99.9	<0.002	29.9	0.006	<0.002		0.13	208	0.071
		4/27/1988	0.00610	285.9	121	<0.002	43.4	0.003	<0.002		0.072	250	0.210
		6/10/1988	0.00780	103.5	31.2	0.004	16.1	0.050	0.005		0.22	49.3	0.480
		7/21/1988	0.01100	293.3	180	0.003	65.2	0.088	2.010	0.04	1.28	463	1.130
		8/2/1988	0.03700	1088	366	<0.002	102	<0.002	6.200	<0.040	0.71	1306	0.620
BMF MF-04	4986	10/4/1988	0.00610	295.2	176	<0.002	80.3	0.016	0.012	0.05	1.39	449	0.540
		5/9/1989	0.01300	343	156	0.002	64.2	0.008	0.007	0.01	0.43	346	0.150
		Total	0.01300		160	<0.002	0.056	2.270	0.0454	0.54		0.330	
		6/18/1986	0.00470	366	94.6	<0.002	49.5	<0.002	<0.002		0.02	198	0.025
		4/28/1988	0.00400	426	139	0.004	144	0.009	<0.002		0.024	229	0.026
		6/10/1988	0.00430	413	145	<0.002	159	0.009	<0.002		0.039	217	0.067
		9/22/1988	0.00520	373	124	<0.002	128	0.004	<0.001	<0.040	0.089	232	0.130
BMF MF-05	4675	10/5/1988	0.00540	477	177	<0.002	212	0.021	<0.002	<0.040	0.067	258	0.073
		5/8/1989	0.00500	551	180	0.008	151	0.020	0.156	0.165	0.105	267	0.157
		Total	0.05800		187	0.009		0.360	44.500	0.33	0.89		2.120
		2/22/2001	0.00631	596.58	106	<0.002	107	0.013	0.040	<0.002	0.065	205	0.108
		6/17/1986	0.00310	229	164	0.19	57.4	0.061	0.0		36.5	521	31.500
		4/28/1988	0.00290	331	177	0.16	47.2	0.046	0.030		35.3	541	28.500
		6/10/1988	0.00370	258.6	168	0.16	51.7	0.081	0.064		33.2	542	27.300
BMF * WELL MF-06	4681	7/22/1988	0.00300	272.3	168	0.18	47.6	0.051	0.076	<0.040	34.9	524	28.500
		10/5/1988	0.00330	273.8	169	0.17	50.7	0.071	0.018	<0.040	34.4	540	27.400
		5/9/1989	0.00370	264	150	0.14	41.4	0.050	0.024	0.028	28.4	441	23.600
		Total	0.08000		149	0.15		0.100	2.240	0.0476	29.4		25.900
		6/17/1986	0.12000	52.9	417	<0.002	126	0.003	75.3		34.1	1615	2.180
		4/27/1988	0.17500	163.9	437	0.008	175	0.027	90.6		35.5	1450	2.360
		6/10/1988	0.13700	162.9	452	0.013	178	0.030	67		27.7	1504	2.930
BMF MF-07	4615	7/27/1988	0.13000	118.3	415	0.006	208	0.028	69.7	<0.040	30.1	1450	2.120
		6/17/1986	0.01800	90.8	483	<0.002	121	0.230	29.6		29	1790	6.570
		4/27/1988	0.03000	112.2	499	<0.002	246	0.062	39.800		27.3	1660	3.560
		6/13/1988	0.02600	103.9	504	0.009	266	2.170	33.100		27.3	1615	6.920
		6/18/1986	0.00260	102	321	0.003	22.6	0.008	0.520		2.96	1190	1.690
		4/27/1988	0.00110	86.9	490	0.047	300	0.200	0.041		1.29	2100	13.200
		6/10/1988	0.00190	98.6	337	0.008	20.9	0.110	0.130		2.88	1265	2.140
BMF MF-08	4700	7/22/1988	0.00050	94.7	336	0.009	19.9	0.074	0.170		3.08	1239	1.610
		10/5/1988	0.00050	98.1	327	0.006	20.6	0.074	0.120	0.07	2.93	1222	1.530
		5/9/1989	0.00080	97.6	345	0.008	23.5	0.110	0.092	0.038	2.63	1295	2.590
		Total	0.01100		340	0.009		0.					

Table IA.
Ground Water Analytical Data
Upper Silver Bow Creek Drainage

GWIC Well Name	GWIC ID	Date	Arsenic (mg/L)	HCO3 (mg/L)	Calcium (mg/L)	Cadmium (mg/L)	Chloride (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Sulfate (mg/L)	Zinc (mg/L)
BMF MF-11	4687	6/17/1986	0.00590	366	102	<0.002	28.1	<0.002	0.011		1	149	0.140
		4/28/1988	0.00670	482	112	<0.002	25.4	<0.002	0.037		1.73	122	0.088
		6/10/1988	0.00590	352	94.8	<0.002	18.9	<0.002	0.024		0.8	128	0.052
		7/22/1988	0.00590	366	102	<0.002	28.1	<0.002	0.011		1	149	0.140
		10/5/1988	0.00890	376	98.6	<0.002	21.6	0.007	0.020	<0.040	1.33	145	0.160
		5/9/1989	0.00520	370	98	<0.002	21.3	0.030	0.590	0.01	1.32	124	0.220
		Total	5/9/1989	0.05900		121	0.007		0.330	35.600	0.149	2.03	0.500
Briggs, Ivan	4648	8/17/1988			148	0.14			5.330	1.97	0.07	53.2	36.000
		11/1/1988	0.00070	0	154	0.14	12.3	5.660	5.24	0.07	50.6	758	32.800
BSB C. Steele Park	4773	10/9/1988	0.02300	204	91	<0.002	17.6	0.007	0.12	<0.040	0.11	177.8	0.013
		9/9/1989	0.01300	204	110	0.043	21	0.820	0.024	<0.050	3	255	4.500
		4/29/2003	0.01940	214.2	79.7	<0.001	19.3	<0.002	0.07	<0.002	0.125	148	0.032
		4/26/2004	0.01870	162.5	90.7	0.0286	22.8	0.936	0.113	<0.002	6.97	252	6.551
		6/2/2005	0.02180	222	83.6	0.00299	20.5	0.078	0.048	<0.002	0.716	144	0.613
		4/5/2006	0.02530	217.2	85.6	<0.001	17.7	0.004	0.078	<0.002	0.099	131	0.012
		3/27/2007	0.02410	211.8	79.7	<0.0001	18.9	0.010	0.091	<0.0002	0.099	139	0.006
BSB Clark Park S.	4672	7/22/1988	0.00110	157.9	55.3	<0.002	15.3	0.004	3.86	<0.040	3.97	108.9	0.017
BSB Hebgan Park	4644	10/5/1988	0.00160	182	81.2	0.002	24.6	0.011	0.021	0.04	0.36	174.2	0.140
		4/6/1989	0.00150	172.8	80.4	0.003	27	0.007	0.034	<0.040	0.038	173.5	0.100
		8/15/1989	0.00140	179	85.8	<0.002	32.4	0.004	0.005	<0.040	0.016	175	0.067
		11/7/1989	0.00020	181	95.6	<0.005	36	0.007	<0.004	<0.050	0.016	192	0.081
		9/11/1990	0.00220	213	108	<0.005	51.3	<0.004	0.014	<0.050	0.022	208	0.114
		3/30/1992	0.00200	233	123.2	0.001	57	0.002	0.006	0.0022	0.029	247.5	0.099
BSB * JFK PARK #1	4709	10/5/1988	0.00050	98.8	50.3	0.002	10.7	<0.002	0.065	0.04	0.039	65.8	0.016
BSB * JFK PARK #2	4708	7/22/1988	0.00140	263.5	82.5	<0.002	11.6	0.004	0.06	<0.040	0.029	64.3	0.013
		9/29/1988	0.00100	274.7	82.6	<0.002	11	0.006	0.07	<0.040	0.077	66.2	0.028
BSB Parrot Park	4647	7/12/2007	<0.00500				0.001		0.060	<0.01	<0.01		
		9/19/1988	0.01700	289.1	139	0.19	27.7	0.160	0.017	0.04	0.29	333	1.260
		4/12/1989	0.01000	277.2	153	0.22	46.1	0.240	0.003	0.1	0.38	353	1.200
		8/15/1989	0.00440	247	111	0.14	25.4	0.213	0.004	<0.040	0.348	258	1.010
		11/8/1989	0.00520	275	144	0.174	28.8	0.255	<0.004	<0.050	0.474	321	1.120
		4/12/1995	0.01970	187	45.8	0.0931	9.5	0.202	0.019	0.0184	0.097	100	1.830
		5/24/1995	0.01690	139.1	30.1	0.0685	8	0.133	<0.003	0.018	0.068	100	1.136
		4/11/2003	0.00956	428	185	0.287	48.3	0.288	0.042	0.012	0.628	427.4	3.210
		4/27/2004	0.00886	341.6	124	0.196	25.9	0.254	0.043	0.0455	0.382	248	2.279
		6/2/2005	0.00863	345	115	0.286	28	0.295	0.010	0.0574	0.321	221	2.213
BSB Whittier Sch.	4716	4/25/2006	0.00896	218.5	72.6	0.00273	12.9	0.035	0.014	0.0217	0.156	98.4	1.152
		8/1/1988	0.00050	116.1	42.8	0.003	6.5	0.003	0.28	0.04	0.071	63.2	0.048
		9/23/1988	0.00070	116.9	41.8	<0.002	6.3	<0.002	0.18	<0.040	0.1	63	0.031
		5/18/1989	0.00070	117.1	41.8	<0.002	6.2	<0.002	0.220	0.0061	0.13	64.6	0.018
BMF * 05-01	222920	3/20/2003	<0.00100	151.3	30.1	<0.001	10.5	<0.002	0.333	<0.002	0.049	35.8	<0.002
		12/22/2005	<0.01000	26.02	305	0.249	11.8	2.057	1.46	<0.010	125	1545	65.656
		4/25/2006	<0.00500	0	341	0.26	6.65	3.916	8.58	<0.010	131	1574	51.684
		8/15/2006	0.00270	13.01	306	0.201	15.4	3.417	7.71	<0.002	114	1564	43.006
		10/24/2006	<0.00500	0	333	0.235	13.2	3.700	9.54	<0.010	122	1559	46.159
		3/27/2007	0.00168	0	317	0.194	15.6	3.672	11.4	<0.001	127	1732	47.184
		3/27/2007	0.00174	0	314	0.192	<25.0	3.611	11.2	<0.001	125	1526	46.327
BMF * WEST CAMP PUMPING WELL	184133	8/2/2000	0.00515	227.4	147	<0.002	36	0.005	0.015	<0.002	0.003	402	0.002
		9/28/2000	0.10900	329.4	167	<0.002	40.8	<0.002	1.21	<0.002	4.64	391	0.009
		12/20/2000	0.11300	333.8	166	<0.002	40.1	<0.002	1.24	<0.002	4.76	413	0.018
		6/21/2001	0.11100	351.8	165	<0.002	40.4	<0.002	1.16	<0.002	4.83	408	0.003
		10/18/2001	0.11300	339.6	157	<0.010	39.7	<0.010	1.24	<0.010	46.1	388	0.016
		11/8/2001	0.10900		152	<0.002		0.005	1.18	<0.002	4.56		0.026
		11/8/2001	0.11500		155	<0.002		<0.002	1.15	<0.002	4.52		0.004
		7/25/2002	0.12000	346.5	155	0.00206	39.2	<0.005	1.08	<0.010	4.55	380	0.004
		5/3/2004	0.09760	335.1	179	<0.001	41.4	<0.002	0.938	<0.002	4.81	394	0.008
		6/8/2005	0.09650	358	178	<0.001	43.3	<0.002	0.943	<0.002	5.35	394	0.010
BSB * LONGFELLOW SOFTBALL FIELDS	4719	8/1/1988	0.00100	105.2	30.8	<0.002	5.6	<0.002	0.71	0.04	0.12	32	0.060
		9/23/1988	0.00040	116.8	30.7	<0.002	4.5	<0.002	0.5	<0.040	0.062	29.6	0.027
		5/18/1989	0.00070	106.4	29.2	<0.002	4.8	<0.002	0.77	<0.004	0.05	32.7	0.018
		5/18/1989	0.00200		30.2	<0.002		0.028	22.8	0.0104	0.16		0.042
		3/20/2003	<0.00100	108	32.9	<0.001	5.02	<0.002	0.446	<0.002	0.022	33.5	0.003
CAPRI MOTEL * PS02A	142005	5/27/1994	0.00100	4.14	209	0.107	11.3	15.580	0.127	0.0094	8.55	767	25.700
		5/27/1994	1.21800		305.6	0.1541		41.300	253	4.145	21.7		45.100
COLORADO TAILINGS * CT-94-1	145010	11/17/1994	0.00520	279.4	132.4	<0.002	30	0.009	0.017	<0.002	0.028	300	0.005
		12/11/1994	0.00200	291.1	119.6	<0.002	30	0.007	0.009	<0.002	0.017	300	1.041
COLORADO TAILINGS * WELL NE-2	4827	11/11/1982		204	124	0.003	29.5	0.046	0.26	0.11	0.21	418	0.300
		4/2/1983	0.00910		127	<0.002	44	0.040	0.028	<0.040	0.023	480	0.100
		7/2/1988	0.01500	185.9	110	<0.002	52.6	0.022	<0.002	<0.040	0.01	410	0.077
		10/5/1988	0.00440	176.7	105	0.006	55.3	0.058	0.003	<0.040	0.22	378	0.190
		5/18/1989	0.00370	177.1	105	<0.005	53.9	0.011	<0.002	0.0013	0.047	374	0.110
		5/18/1989	0.00530		106	<0.002		0.031	0.59	0.018	0.064		0.093
		8/16/1989	0.00280	168	87.8	<0.002	49.8	0.002	0.565	<0.040	0.345	334	0.071

Table IA.
Ground Water Analytical Data
Upper Silver Bow Creek Drainage

GWIC Well Name	GWIC ID	Date	Arsenic (mg/l)	HCO3 (mg/l)	Calcium (mg/l)	Cadmium (mg/l)	Chloride (mg/l)	Copper (mg/l)	Iron (mg/l)	Lead (mg/l)	Manganese (mg/l)	Sulfate (mg/l)	Zinc (mg/l)
EMMA MINE	4818	10/31/1988	0.16100	361	228	0.012	37.1	0.008	12.9	<0.040	20.8	641	2.190
		4/7/1989	0.14700	316	222	0.006	37.2	0.050	8.68	0.07	20.3	667	2.780
		8/8/1989	0.12600	332	213	<0.002	1	0.003	10.3	<0.040	17.7	627	2.200
		10/8/1989	0.14400	331	233	<0.005	37.2	0.005	11.745	<0.050	19.78	615	2.340
		4/25/1990	0.15300	333	224	<0.005	36.2	<0.004	10.33	<0.050	16.38	589	0.986
		3/8/2000	0.01820	397.72	203	0.0471	43.66	<0.002	3.68	<0.002	21.6	567.6	17.300
		7/11/2001	0.01710	495.5	203	0.0419	40.6	<0.010	1.78	<0.010	23.5	532	20.500
		7/29/2002	0.01080	392.2	192	0.088	39.5	0.019	0.295	<0.010	34.6	584	39.400
		4/8/2003	<0.00500	382.6	194	0.0559	40	0.049	0.401	<0.010	22.6	553.6	20.000
		4/22/2004	0.03020	415.6	195	0.00218	41.2	0.011	1.94	<0.002	10.2	405	1.151
Evans, Bruce	122864	5/2/2005	0.02530	416	193	<0.001	39	<0.002	0.142	<0.002	12.3	427	0.988
		4/19/2006	0.02380	394.9	189	<0.001	39.6	<0.002	1.78	<0.002	9.53	402	0.139
		4/24/2007	0.02830	401.1	186	0.00019	43.1	0.001	1.79	0.00179	15.2	459	2.041
		9/25/1991	0.00040	56.4	172.4	0.028	13.1	0.038	0.258	<0.050	0.018	564.7	0.201
Father Sheehan Park * 93-51	50094	7/13/1993	0.00180	119	30.3	<0.002	5.7	<0.002	<0.003	<0.002	<0.002	24.6	0.003
FIGUEIRA JOSEPH * 93-70	50356	4/12/2007	<0.005			<0.001		<0.01		<0.01	<0.01		0.010
Freeman, Jerry	129259	7/16/1993	0.00450	167	81.7	<0.002	13.1	0.018	<.003	<0.002	<.002	147	0.070
GG99-01 MONITOR WELL PRIORITY SOILS	171293	10/25/2001	0.00476	211.5	94.1	<0.002	24.6	0.008	0.022	<0.002	<.001	148	0.058
		11/17/1999	<0.00100	181.5	95.1	<0.002	15.94	<0.002	5.36	<0.002	5.29	217.4	<0.002
GRANITE MOUNTAIN MINE	4506	3/2/2001	<0.00100			<0.020			0.089		<0.020		0.549
		6/25/1987	0.00450	112.2	539	0.02	9.9	0.420	0.26		27	1932	24.300
		5/31/1988	0.00440	100.5	548	0.019	9.3	0.180	0.11		32	1960	14.200
		3/3/1989	0.01400	93.2	549	0.007	10	0.035	2.32	<0.004	50.3	2050	11.900
		8/4/1989	0.01000	109.8	565	0.007	19.6	0.138	6.97	<0.040	68.7	2220	14.980
		5/1/1990	0.01900		550	<0.005	10.7	0.097	114	0.11	100	2660	16.800
		10/13/1992	0.01440	52	490	0.0372	22.4	1.590	89.4	<0.003	52.4	2260	21.650
		12/21/1992	0.05150	157.8	470	0.0064	47.9	0.093	159	<0.002	87.1	2278	7.820
		4/7/1993	0.01360	17.81	494	0.032	21	1.320	73	<0.010	47.9	1942	20.500
		7/27/1993	0.02260	108	535	0.0111	16.4	0.300	151	<0.004	83.8	2433.3	10.890
		12/21/1993	0.00340	98.5	533	0.0122	9.7	0.270	134		74.4	2420	14.230
		8/29/1994	0.06220	102	574	0.0124	10	0.490	151	<0.008	74	2500	18.000
		3/23/2000	0.00932	0	541	0.00892	11.686	0.189	77	<0.002	65.8	2368.5	23.300
		3/23/2000	0.00533	0	561	0.00942	11.376	0.188	68	<0.002	66.8	2417.9	23.900
Hoff, Quinton	129262	5/3/1993	<0.00100	78	67	0.0203	10.9	0.025	0.016	<0.002	0.069	141	0.093
		5/9/1994	<0.00100	78.6	67.9	<0.002	10.9	0.017	0.018	<0.002	0.009	133	0.022
		10/24/2001	<0.00100	103.5	72.5	<0.002	14.3	0.050	0.023	<0.002	0.003	135	0.036
Hydropunch	137603	9/10/1993			398		0.349		7.049	141	<0.100	15.96	
KELLEY MINE	4514	7/28/1983	2.04000	0	418	4.16	13.4	341.000	965	<0.040	238	9600	708.000
		10/13/1983	0.37200	45.6	473	0.46	58.2	23.800	72.7	<0.040	34.6	3310	90.300
		2/16/1984	0.10200	0	546	1.04	36.8	34.000	286	0.16	93.4	4110	22.700
		4/26/1984	2.88000		489	0.66		43.800	1080		94.2		344.000
		7/12/1984	0.13600		523	0.17		2.130	90.7				8.540
		7/12/1984	4.12000	0	487	1.97		0.800	3080		250	12800	853.000
		7/12/1984	2.78000		492	0.97	33	3.040	3270		244		824.000
		7/12/1984	5.34000	0	484	1.22		7.790	2520		169	10400	623.000
		7/26/1984	1.67000	0	506	0.47	17.8	2.120	867		75.1	5340	269.000
		10/18/1984	0.00190	8.8	500	0.13	36.7	0.280	0.4		13.9	2490	32.100
		11/30/1984	5.13000	0	507	0.95	44.3	90.000	1633		129	8000	678.000
		11/30/1984	4.73000	0	502	1.25	31.3	93.400	1629		129	7830	666.000
		11/30/1984	4.28000	0	499	0.99	31.3	91.900	1609		126	8080	660.000
		11/30/1984	4.64000	0	493	1.23	31.6	90.700	1590		125	7770	652.000
		5/30/1985	1.21000	0	494	0.49	32	10.600	871		87.2	5410	45.700
		5/30/1985	#####	0	517	1.17	29	6.480	6030		439	23500	1550.000
		5/30/1985	#####	0	520	1.28	17.5	6.200	6200		456	24300	1590.000
		5/30/1985	1.87000	0	489	0.83	16.6	10.900	1240		112	6440	596.000
		10/31/1985	0.00150	58.1	507	0.036	30.5	0.079	1.32		23.2	2492	63.500
		10/31/1985	2.88000	0	486	0.16	41.1	0.340	1320		118	6430	498.000
		10/31/1985	0.24100	0	491	0.14	29.1	0.350	992		96.2	5490	448.000
		10/31/1985	0.00460	0	489	0.13	25.7	0.350	977		95.8	5430	441.000
		5/29/1986	0.01180	0	544	0.097	25.4	3.310	327		57.6	3480	168.000
		5/29/1986	0.08320	0	533	0.12	32.4	3.180	314		56	3400	162.000
		5/29/1986	6.80000	0	492	0.078	32	1.760	1840		158	8150	567.000
		6/26/1986	0.01900	0	606	0.11	21.4	3.760	363		59.8	3720	177.000
		7/31/1986	0.01200	0	535	0.042	34.3	4.300	356		61.2	3433	172.000
		9/26/1986	4.29000	0	470	<0.002	34.4	0.680	803		100	4386	25.300
		10/30/1986	3.39000	0	459	<0.002	38.4	0.700	730		96.7	4040	234.000
		10/30/1986	3.59000	0	460	<0.002	32.7	0.540	726		95.9	4040	234.000
		10/30/1986	7.00000	0	459	0.012	30.5	1.670	1950		169		510.000
		7/31/1987	1.68000	29.9	480	0.069		0.092	515		79.9	3300	163.000
		10/14/1987	0.02900	304	0.25	39.5	0.130	0.51	0.07	21.4			54.000
		10/14/1987	0.03100	0	302	0.26		0.120	0.36	0.04	20.8	1315	55.200
		10/14/1987	0.88800	385		0.12	18.5	0.140	247	0.07	47.9		106.000
		10/14/1987	1.05000	403		0.11		0.150	286	0.12	52.1		115.000
		10/14/1987	1.04000	407		0.11		0.140	285	0.09	52.4		114.000
		1/27/1988	0.01400	294		0.18	17.3	0.140	0.5	<0.040	20.5	1253	50.900
		3/29/1988	0.01800	0	285	0.144	19.5	0.172	0.31	<0.040	22.7	1210	50.700

Table IA,
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Upper Silver Bow Creek Drainage

GWIC Well Name	GWIC ID	Date	Arsenic (mg/L)	HCO3 (mg/l)	Calcium (mg/l)	Cadmium (mg/l)	Chloride (mg/l)	Copper (mg/l)	Iron (mg/l)	Lead (mg/l)	Manganese (mg/l)	Sulfate (mg/l)	Zinc (mg/l)
KELLEY MINE		3/30/1989	0.05400	101.9	492	0.08	37	0.075	466	0.16	68.7	3400	122,000
		4/26/1989	0.02900	0	465	0.1	38.8	0.090	183	0.06	35.7	2430	95,000
		8/4/1989	0.23400	59.8	577	0.05	41.3	0.097	532	0.12	82	4040	13,000
		10/31/1989	1.30400		526	<0.005	37.1	0.060	547	0.11	79.1	3830	131,000
		12/28/1989	2.02000		521	<0.005	45.4	0.120	486	0.11	72.41	3500	138,000
		5/1/1990	1.72000	46.3	514	<0.005	40.7	0.105	447	0.12	72.6	3410	138,000
		6/9/1990	1.80000	27	520	<0.005	36.7	0.123	445	0.104	65.3	3500	130,000
		4/30/1991	1.86000	71.8	528	0.017	38	0.235	356	<0.100	56.92	2643	124,300
		5/27/1992	#####	0	500	<0.020	68.7	0.238	3392	0.465	310	11860	634,000
		10/13/1992	1.51200	30.6	435	0.16	50.5	0.169	364	<0.005	64	2598	153,000
		10/19/1992	#####		450	<0.010	<10.	0.256	4200	<0.005	390	14500	892,000
		10/20/1992	1.72200	67	415	0.085	30.8	0.179	436	<0.005	67.3	3048	166,000
		10/20/1992	4.75100	65	455	0.057	32.5	0.132	974	0.022	117	4550	283,000
		4/15/1996	#####	0	500	0.34	<100.0	<0.020	2823	<0.020	262	13000	493,000
		12/9/1996	#####	0	517.6	0.0076	40.3	<0.002	2499	0.0086	233.1	9362	420,000
		7/24/1997	3.24900	60.02	502.3	0.0368	<500.	0.107	419.9	0.0031	60.7	3126	199,000
		7/18/2001	5.10000	0	511	<0.020	43.7	<0.200	478	<0.020	70	3338	160,000
		7/11/2002	1.32000	0	472	0.0821	26.7	<0.200	2200	<0.020	222	8517	361,000
		4/8/2003	#####	0	490	<0.020	<125.0	<0.200	1910	<0.020	198	8028	320,000
		11/18/2003	#####	0	476	0.0496	<25.0	<0.020	1780	<0.020	199	8220	296,000
		11/19/2003	#####	0	486	0.0446	<25.0	<0.020	1930	<0.020	197	8950	332,316
		4/12/2004	#####	0	481	0.0193	37.8	0.022	1969	<0.020	206	9391	354,385
		10/22/2004	#####	0	509	0.0197	22.5	0.056	1914	<0.020	198	7514	340,000
		5/2/2005	#####	0	497	0.0193	21.4	0.088	1875	<0.020	190	7754	327,083
		5/2/2005	8.47600	0	495	0.0204	21.2	0.095	1835	<0.020	190	7917	324,930
		12/30/2005	#####	0	472	0.0193	<25.0	0.060	1752	<0.020	186	7600	308,767
		12/30/2005	#####	0	459	0.0261	<25.0	0.043	1977	<0.020	206	7893	351,152
		4/21/2006	#####	0	491	0.0205	<50	0.044	1640	<0.020	172	7552	303,397
		5/5/2006	#####	0	483	0.0317	<50.0	0.044	2266	<0.020	236	8961	388,535
		12/7/2006	#####	0	487	0.0166	<50.0	<0.020	1676	<0.020	176	6570	283,301
		12/7/2006	#####	0	482	0.0158	<50.0	<0.020	1748	<0.020	183	7522	289,948
King, George	128027	7/12/1993	0.00100	162	52.2	<0.002	17.5	0.011	0.035	<0.002	3.52	94.4	0.972
		10/26/2001	0.00109	163.2	44.6	<0.002	19.8	0.006	0.015	<0.002	0.884	74.1	0.514
LEXINGTON MINE SHAFT	4737	11/11/1987	0.19800	254.7	344	0.054	39.1	0.008	28.6	0.1	118	1600	162,000
		11/11/1987	0.19300	245	351	0.061	40.6	0.009	28.1	0.06	118	1640	165,000
		11/11/1987	0.20300	245	345	0.05	39.3	0.006	28.3	<0.040	117	1620	164,000
		1/29/1988	0.15200	268.4	346	0.086	39.1	<0.002	25.3	<0.040	111	1576	152,000
		3/31/1988	0.15700	188.5	339	0.077	40.2	0.007	24.7	0.06	104	1570	144,000
		6/1/1988	0.15300	282.1	355	0.054	40.8	<0.002	25.4		96.2	1493	130,000
		7/29/1988	0.19100	274.7	352	0.049	41.8	0.017	24.3	0.07	90.6	1512	124,000
		4/5/1990	0.00430	185	360	0.328	41.7	0.013	6.066	0.06	106	1580	129,000
		4/5/1990	0.27000		361	0.332		0.207	44.93	2.02	112		137,000
		4/5/1990	0.00490		335	0.285		0.008	8.037	0.05	106		123,000
Margaret Ann S-4	4725	4/5/1990	0.42000		354	0.293		0.247	65.33	1.79	109		132,000
		11/16/1989	0.00130	229	117	<0.005	14.4	<0.004	<0.004	<0.050	0.038	226	0.172
		7/12/1993	0.00270	262	78	<0.002	18.3	0.060	<0.003	0.0019	0.006	100.5	0.010
		10/25/2001	0.00305	237.9	66.5	<0.002	20.5	0.013	0.017	<0.002	<0.001	70.4	0.002
		7/1/1988	0.00200	150.5	118	<0.002	4.5	<0.002	0.24	<0.040	0.35	271	<0.003
MARGET ANN MINE * BUTTE MT	4732	11/30/1988	0.00060	93.7	102	0.022	2.9	0.068	0.7	<0.040	1.16	278	2,320
		8/8/1989	0.00340	142	103	0.005	6	<0.004	0.26	<0.040	0.61	224	0.020
		9/17/1989	0.00260	140	101	<0.005	4.4	0.010	0.061	<0.050	0.3	228	0.016
		11/11/1987	0.00090	125.4	125	<0.002	19.5	0.003	0.42	<0.040	2.02	288	0.330
		11/11/1987	0.00290	124.9	124	<0.002	18.5	0.004	0.55	<0.040	1.43	282	0.064
		11/11/1987	0.00180	125.9	123	<0.002	18.4	0.003	0.42	<0.040	1.4	282	0.015
		11/11/1987	0.00130	135.2	130	<0.002	17.7	<0.002	0.64	<0.040	1.86	298	0.009
		1/29/1988	0.00200	122	123	<0.002	18.4	0.006	0.41	0.04	1.36	278	0.005
		6/1/1988	0.00240	165.4	136	<0.002	37.8	<0.002	0.38		1.62	268	0.069
		7/1/1988	0.00140	147.4	140	<0.002	39.6	0.006	0.39	0.04	1.77	287	<0.003
		7/29/1988	0.00210	147.6	134	0.002	35.7	0.006	0.5	0.04	1.94	283	0.280
		11/30/1988	0.00090	233	148	0.002	24.5	<0.002	0.13	<0.040	2.2	274	0.017
		8/10/1989	0.00060	221.8	104	<0.002	28.8	<0.002	0.088	<0.040	1.47	280	0.010
		10/21/1989	0.00060	227	153	<0.005	25.7	0.007	0.171	<0.050	2.333	278	0.021
		4/5/1990	0.00060	231	150	<0.005	25.5	<0.004	0.112	<0.050	2.284	266	0.061
		4/5/1990	0.00690		154	<0.005		0.016	2.098	0.08	2.51		0.385
		4/2/1992	<0.00100	248.9	138	<0.001	25	<0.002	0.097	<0.040	1.78	246.7	<0.003
		4/2/1992	<0.00100	248.4	140	<0.001	24.7	<0.002	0.102	<0.040	1.87	249.7	<0.003
		10/26/1995	0.00110	270.4	146.3	<0.002	20	<0.002	0.122	<0.002	2.2	250	<0.002
		4/8/1996	<0.00100	265.4	149.8	<0.002	22.4	<0.002	0.175	<0.002	2.2	250.7	0.006
		12/9/1996	<0.00100	245	145.2	<0.002	20.9	<0.002	0.437	<0.002	2.3	262.9	0.084
		7/25/1997	0.00130	261.08	154.8	<0.002	22	<0.002	0.338	<0.002	2.1	274	0.030
MBMG BT-98-02	171294	2/24/2000	<0.00100	191.3	142	<0.002	19,021	<0.002	0.257	<0.002	1.81	329.2	0.003
		9/28/2000	<0.00100	159.1	107	<0.002	17.5	<0.002	0.374	<0.002	1.01	246	0.003
		4/9/2003	<0.00100	228.5	139	<0.002	17.7	<0.002	0.063	<0.002	1.87	283.4	<0.002
		6/2/2005	0.00173	238	149	<0.001	19.3	<0.002	0.082	<0.002	1.81	266	<0.002
		7/26/1983	0.00530	0	385	0.37	15.3	79,000	144	0.14</b			

Table IA,
Ground Water Analytical Data
Upper Silver Bow Creek Drainage

GWIC Well Name	GWIC ID	Date	Arsenic (mg/l)	HCO3 (mg/l)	Calcium (mg/l)	Cadmium (mg/l)	Chloride (mg/l)	Copper (mg/l)	Iron (mg/l)	Lead (mg/l)	Manganese (mg/l)	Sulfate (mg/l)	Zinc (mg/l)
MBMG MSD-1B MSD PROJECT	211606	4/15/2004	0.01000	0	540	0.665	543	4.201	357	0.0314	221	3098	200.140
		4/15/2004	<0.00500	69.6	543	0.0626	18.9	0.269	0.23	<0.010	29.6	2132	9.480
		5/18/2006	<0.00500	30.5	501	0.105	39.3	0.438	22.4	<0.010	44.1	2070	26.775
		5/18/2006	<0.01000	0	463	0.376	209	3.307	185	<0.020	144	2786	108.987
		4/26/2007	<0.00200	0	466	0.348	204	3.169	155	0.0244	170	2705	118.000
MBMG MSD-1C	211603	4/15/2004	<0.00500	69.6	543	0.0626	18.9	0.269	0.23	<0.010	29.6	2132	9.480
		5/18/2006	<0.00500	30.5	501	0.105	39.3	0.438	22.4	<0.010	44.1	2070	26.775
MBMG MSD-2B	215787	4/2/2004	<0.01000	23.4	573	0.842	147.9	43.39	2.33	0.0211	307	3129	181.341
		5/17/2006	0.00503	16.6	136	0.102	123	0.200	16.4	0.00365	23.7	501	13.147
MBMG MSD-3	211593	5/19/2004	<0.00500	99.2	441	0.0373	69.5	0.403	0.408	<0.010	21.5	1422	9.700
		5/19/2006	<0.00500	76.6	471	0.0793	78.4	2.013	0.056	<0.010	45.4	1735	25.337
		7/26/2006	0.00298	124.4	484	0.0557	79.8	1.464	0.036	0.00495	30.8	1864	17.114
MBMG MSD-04 MSD PROJECT	215790	10/26/2004	0.01400	135.4	337	0.00819	87.8	<0.005	0.03	<0.010	7.78	1118	0.363
		4/26/2007	0.00120	73.2	315	0.00902	59.6	0.006	0.013	<0.001	10.46	1171	0.440
McLaughlin, Ray	127062	7/15/1993	<0.00100	42.9	72.6	<0.002	14.9	0.025	0.039	<0.002	0.007	230	0.232
MICK'S REPAIR	890802	8/24/1989	0.01400	368	180	<0.005	87.6	0.019	0.13	<0.040	1.85	341	0.097
MISSOULA SHAFT	4744	2/4/1988	0.00100	462	350	<0.002	48.5	<0.002	2.96	<0.040	12.5	1276	0.035
		2/4/1988	0.00060	467	348	<0.002	48.2	<0.002	2.98	<0.040	12.7	1274	0.019
		2/4/1988	0.00090	464	344	<0.002	47.7	<0.002	2.97	<0.040	12.6	1272	0.008
		2/4/1988	0.00050	462	344	<0.002	48.1	<0.002	2.94	<0.040	12.3	1276	0.004
		2/4/1988	0.00030	466	345	<0.002	49.6	<0.002	2.97	<0.040	12.6	1281	<0.003
		6/1/1988	0.00260	446	338	<0.002	49.6	0.018	3.32	<0.040	10.9	1245	0.030
		7/29/1988	0.00200	439	333	<0.002	51	0.008	2.36	<0.040	10.3	1270	0.044
		8/9/1989	0.00260	200	144	<0.002	15.7	0.026	0.39	<0.040	7.37	518	2.440
MONTANA POWER TRANS YARD * MW-03A-MPC	121235	10/19/1990	0.00980	122	37.4	<0.005	21.7	<0.004	<.004	<0.050	0.01	52.5	0.025
MONTANA POWER TRANS YARD * MW-03A-MPC	121235	10/23/1990	0.01100	120	33.6	<0.005	16.4	<0.004	<.004	<0.050	0.003	49.3	0.019
MONTANA POWER TRANS YARD * MW-03A-MPC	121235	5/12/1993	0.00930	123	36.5	<0.002	20.1	<0.002	<.003	0.0097	<.002	48.5	0.009
MONTANA POWER TRANS YARD * MW-03-MPC	121229	10/23/1990	1.17000	245	98.9	<0.005	41.7	0.764	<.004	<0.050	0.115	105	0.687
		10/23/1990	1.16000	241	96.7	<0.005	38.5	0.755	<.004	<0.050	0.112	105	0.680
		11/15/1990	1.17000	233	94.7	<0.005	35.3	0.739	<.004	<0.050	0.101	109	0.615
		5/12/1993	1.21100	209.9	86	0.0036	29.7	0.722	0.015	0.0389	0.057	111	0.762
		5/12/1993	1.20700	196.7	83.4	0.0037	29.7	0.711	<.003	0.0353	0.056	111	0.776
MONTANA POWER TRANS YARD * MW-04-MPC	121231	10/22/1990	0.00840	297	112	<0.005	26.3	0.011	<.004	<0.050	0.532	161	0.072
MONTANA POWER TRANS YARD * MW-05-MPC	121224	10/22/1990	0.00210	194	100	<0.005	61.9	<0.004	<.004	<0.050	0.002	146	<0.006
MRI * SARSFIELD WELL IN THE CONTINENTAL PIT	184130	1/5/1994	0.00440	125	212	0.0052	10.3	0.027	1.83	<0.002	2.64	562	1.120
		9/13/2000	0.00598	177.1	360	0.00306	6.68	0.012	0.379	<0.002	3.46	906	1.520
		9/13/2000	0.00823	376	376	0.00295	0.014	2.35	<0.002	3.37	<0.002	1.560	
		9/20/2000	0.00564	178.6	337	0.00477	7.34	0.004	0.328	<0.002	3.26	936	1.400
		9/27/2000	0.00696	179.3	337	0.00405	8.14	0.012	1.19	<0.002	3.28	838	1.440
		11/8/2000	<0.01000	136.6	295	<0.020	7.64	<0.020	<.05	<0.020	3.15	780	1.470
		11/29/2000	0.01040	189.1	361	<0.020	8.37	<0.020	3.16	<0.020	4.92	941	2.560
		12/19/2000	<0.01000	183	357	<0.020	8	<0.020	0.932	<0.020	4.76	979	2.410
		12/27/2000	0.01120	171.6	349	<0.020	7.74	<0.020	3.28	<0.020	4.61	944	2.510
		1/9/2001	0.00150	172	333	<0.020	6.9	<0.020	3.14	<0.020	4.35	951	2.410
		1/23/2001	<0.00100	171.8	360	<0.020	7.05	<0.020	2.92	<0.020	4.53	954	2.650
		2/14/2002	<0.01000	178.12	368	<0.020	9.42	<0.020	9.48	<0.020	2.22	998	1.240
		4/16/2002	0.00647	154.9	353	<0.010	<5.0	<0.010	7.74	<0.010	1.78	992	1.240
		5/15/2002	0.00680	220.8	407	<0.002	6.68	<0.010	12.6	<0.010	3.76	1161	1.880
		7/18/2002	0.01030	312.3	441	<0.020	6.04	<0.020	2.92	<0.020	8.64	1165	5.260
		8/14/2002	329.6	443	<0.001	7.34	<0.005	2.9	<0.002	8.57	1188	4.500	
		9/23/2002	<0.05000	195.3	437	<0.005	7	<0.025	3.93	<0.050	8.93	1270	5.250
		10/14/2002	0.01970	212.3	387	<0.001	<10.0	<0.005	3.91	<0.010	8.01	1139	4.870
		2/12/2003	<0.00500	188.2	384	<0.001	<12.5	<0.010	17.2	<0.010	5.3	1155	4.660
		3/12/2003	<0.00500	312.3	391	<0.005	<25.0	<0.010	17.1	<0.010	4.13	1135	5.010
		6/20/2003	<0.00500	190.3	464	0.0109	7.73	0.013	0.896	<0.010	5.35	1243	3.392
		7/30/2003	<0.00500	162.3	467	0.0135	10	<0.005	0.39	<0.010	4.53	1294	2.987
		8/26/2003	<0.00500	116.4	429	0.068	8.2	0.008	0.607	<0.010	4.07	1338	2.992
		10/23/2003	0.00777	145.2	458	0.011	<5.0	0.056	0.921	<0.010	6.03	1263	4.051
MOUNT MORIAH CEMETARY * IRRIG CISTERN	137007	10/15/1992	0.00280	228	180	<0.002	28.7	<0.002	0.22	<0.003	0.006	481	0.009
MRI BMF BW A	123701	9/10/1991	0.07400	72.2	198	<0.006	19.6	<0.006	15.200	<0.100	4.553	942	0.128
		8/24/1994	0.05560	71.7	204.9	<0.002	17.5	<0.002	17.200	<0.002	5	900	0.112
		3/15/1995	0.06000	67.9	182	<0.002	20	<0.002	16.700	<0.002	4.8	1000	0.102
		10/6/1995	0.04890	60.2	187.1	<0.002	20	<0.002	17.600	<0.002	4.5	900	0.048
		4/2/1996	0.04880	34.2	202	<0.002	20	<0.002	20.000	<0.002	4.8	970	0.042
		11/21/1996	0.04790	71.2	192.9	<0.002	21.2	0.002	16.300	<0.002	4.9	943.4	0.030
		7/13/1999	0.06050	42.3	199	<0.001	14.6	<0.002	14.200	<0.002	5.04	957	0.125
		1/19/2000	0.07070	67.1	191	<0.002	16.41	<0.002	15.700	<0.002	4.58	1026.2	0.096
		6/14/2000	0.05670	45.1	194	<0.002	16.2	<0.002	16.800	<0.002	4.85	905	0.026
		11/29/2000	0.06040	51.2	206	<0.020	16.9	<0.020	18.600	<0.020	4.88	957	0.114
		7/13/2001	0.05600	123.6	197	<0.010	16.4	<0.010	17.100	<0.010	4.99	945	0.100
		12/13/2001	0.06390	64.7	179	<0.002	16	<0.002	14.500	<0.002	4.7	897	0.109
		4/23/2003	0.06180	56.12	187	<0.001	15.9	<0.005	14.000	<0.010	4.64	946	0.131
		11/3/2003	0.06260</										

Table IA.
Ground Water Analytical Data
Upper Silver Bow Creek Drainage

GWIC Well Name	GWIC ID	Date	Arsenic (mg/l)	HCO3 (mg/l)	Calcium (mg/l)	Cadmium (mg/l)	Chloride (mg/l)	Copper (mg/l)	Iron (mg/l)	Lead (mg/l)	Manganese (mg/l)	Sulfate (mg/l)	Zinc (mg/l)
MRI BMF BW B	125710	1/28/1992	0.01670	121	150	<0.006	30.4	<0.006	0.840	<0.050	1.62	533.3	0.062
		4/20/1993	0.00760	127	176	<0.002	28	<0.002	1.320	<0.002	2.12	625	0.008
		8/29/1994	0.00790	124.4	200	<0.002	27.5	<0.002	1.800	<0.002	2.39	650	0.006
		10/9/1995	0.00860	125.3	185.3	<0.002	30	<0.002	2.400	<0.002	2.2	652	0.008
		4/8/1996	0.00790	126.9	191.5	<0.002	30.2	<0.008	2.100	<0.002	2.2	675	0.032
		1/23/1998	0.00920	109.8	166.9	<0.002	26.9	<0.002	7.920	<0.002	2.306	692.3	0.003
		1/18/1999	0.01150	125.4	184	<0.002	25.4	<0.002	1.350	<0.002	2.15	654.1	0.008
		2/1/2000	0.01150	121	178	<0.002	26.09	<0.002	0.968	<0.002	2.07	655.9	0.011
		6/15/2000	0.01090	122	189	<0.002	25.8	<0.002	1.680	<0.002	2.27	743	0.008
		12/27/2000	0.01100	124	180	<0.002	25.2	<0.002	1.450	<0.002	2.11	647	0.002
		7/13/2001	0.00622	123.2	188	<0.010	25.2	<0.010	1.360	<0.010	2.17	702	<0.010
		12/14/2001	0.01330	135.4	181	<0.002	26.6	<0.002	0.896	<0.002	2.11	673	0.014
		4/24/2003	0.01360	130.13	186	<0.001	25.3	<0.005	0.930	<0.010	2.17	618.1	0.011
		11/5/2003	0.01240	116.6	193	<0.001	25.1	<0.005	0.854	<0.010	2.17	664	0.020
		4/20/2004	0.01410	116.6	202	<0.001	25.7	<0.002	1.010	<0.002	2.31	703	0.015
		12/6/2004	0.01430	149.5	194	<0.001	26.9	<0.010	0.910	<0.010	2.28	761	0.014
		5/9/2005	0.01490	121.8	205	<0.001	22.9	<0.002	0.910	<0.002	2.33	736	0.012
		12/22/2005	0.01660	116.1	198	<0.001	23.2	<0.002	0.846	<0.002	2.31	732	0.016
		4/12/2006	0.01580	125.7	203	<0.001	22.1	<0.002	0.897	<0.002	2.33	759	0.019
		10/26/2006	0.01030	137.1	218	<0.001	24.3	<0.005	0.898	<0.010	1.95	755	0.005
MRI BMF BW C	122535	5/29/1991	0.00200	30	86.32	<0.006	3.5	<0.006	9.611	<0.050	1.72	336	2.630
		8/25/1994	0.00160	41.5	90.4	<0.002	4	<0.002	5.780	<0.002	1.77	300	1.180
		3/21/1995	0.00180	23.2	88.3	<0.002	4	<0.002	8.610	<0.002	1.7	300	1.598
		10/20/1995	0.00150	28.8	87.3	<0.002	4	<0.002	9.300	<0.002	1.8	350	1.572
		4/10/1996	<0.00100	28.3	85.8	<0.002	<10	<0.002	9.400	<0.002	1.7	347.5	1.446
		11/14/1996	0.00130	30.7	86	<0.002	<0.05	<0.002	16.100	<0.002	1.8	297.2	1.046
		6/19/1997	<0.00200	16.6	92.2	<0.002	3.9	<0.002	6.500	<0.002	1.7	332.4	1.696
		1/22/1998	0.00170	24.9	87.3	<0.002	<10	<0.010	6.600	<0.002	<0.001	328.9	1.924
		2/8/1999	0.00215	20.5	81.2	<0.002	5	<0.002	7.450	<0.002	1.7	326.1	1.600
		7/14/1999	0.00196	23.7	88	<0.002	3.611	<0.002	7.100	<0.002	1.73	330.19	1.400
		1/21/2000	0.00205	28.3	81.9	<0.002	<5	<0.002	9.500	<0.002	1.69	341.3	1.330
		6/16/2000	0.00192	9.3	83.3	<0.002	<5	<0.002	8.580	<0.002	1.72	331	1.550
		12/19/2001	0.00195	7.32	78.4	<0.002	2.91	<0.002	4.260	<0.002	1.68	333	2.140
		4/21/2003	0.00207	7.8	79.5	<0.001	<5	<0.002	4.090	<0.002	1.7	302.8	2.080
		11/12/2003	0.00205	12.5	86.9	<0.001	<5	<0.002	4.300	0.00498	1.71	346	1.939
		4/13/2004	0.00153	41.2	83.7	<0.001	<5	<0.002	9.790	<0.002	2.01	334	1.008
MRI BMF BW G	145674	12/7/2004	0.00166	38.8	80	<0.001	2.94	<0.002	6.760	<0.002	1.76	327	1.109
		5/3/2005	0.00171	9.15	87.9	<0.001	<5	<0.002	6.000	<0.002	1.82	344	2.112
		12/21/2005	0.00246	31.5	81.8	<0.001	3.2	<0.002	12.200	<0.002	2.04	337	1.063
		4/13/2006	0.00175	19.3	85.1	<0.001	<5	<0.002	7.920	<0.002	1.76	338	1.709
		11/13/2006	0.00151	17.1	86.7	<0.001	3.19	<0.002	8.070	<0.002	1.75	343	1.301
		1/23/1995	0.00720	13.5	147.5	<0.002	2.5	<0.002	16.200	<0.002	1.8	550	0.157
		10/24/1995	0.00490	24.89	148	<0.002	2.5	<0.002	11.500	<0.002	1.8	550	0.080
		4/12/1996	0.01170	22.9	144	<0.002	<10	<0.004	15.000	<0.002	0.2	560	0.156
		11/19/1996	0.00370	39.4	152	<0.002	2.4	0.003	19.300	<0.002	2.4	566.2	0.049
		6/25/1997	0.00770	12.2	157.1	<0.002	1.9	<0.002	16.900	<0.002	1.8	556.2	0.127
		1/28/1998	0.00250	43.9	141.2	<0.002	2.047	<0.002	2.900	<0.002	0.817	533.7	0.003
MRI BMF BW H	146073	1/14/1999	0.00860	21.8	145	<0.002	<10	<0.002	13.100	<0.002	1.87	565.1	0.147
		7/15/1999	0.00769	33.4	149	<0.002	2.129	<0.002	13.300	<0.002	1.82	535.9	0.153
		1/26/2000	0.00503	34.6	134	<0.002	<5	<0.002	12.800	<0.002	1.9	542.4	0.032
		6/14/2000	0.26400	51.24	147	<0.002	<5	<0.002	3.340	<0.002	0.866	503	0.005
		12/26/2000	0.00824	63.8	145	<0.002	<5	<0.002	12.200	<0.002	1.89	520	0.086
MRI BMF D-01	127004	12/19/2001	0.00626	29.3	136	<0.002	1.66	<0.002	10.000	<0.002	1.74	515	0.067
		4/22/2003	0.00766	20.7	135	<0.001	<5	<0.002	12.900	<0.002	1.81	537	0.195
		4/28/2004	0.00755	25.9	146	<0.001	<5	<0.002	12.700	<0.002	1.9	542	0.115
		5/6/2005	0.00659	23.6	149	<0.001	<5	<0.002	13.800	<0.002	2.19	547	0.021
		4/11/2006	0.00780	21.96	149	<0.001	<5	<0.002	12.900	<0.002	1.93	525	0.166
MRI BMF D-02	122536	1/3/1995	0.07790	0	356.1	<0.010	7.5	<0.010	138.400	<0.010	14.6	2000	4.991
		2/18/1998	0.10290	0	224.8	0.5429			0.845	641.000	<0.020	60.1	179.000
		4/14/1992	0.01000	40.8	65.5	<0.001	3.7	<0.002	4.100	<0.004	1.35	273.6	1.983
		8/30/1994	0.01180	29.5	74.9	<0.002	2.5	0.003	12.800	<0.002	1.7	300	0.935
		1/25/2001	0.01290	80.52	79.1	<0.002	<5	<0.002	7.830	<0.002	1.29	310	1.080
		12/21/2001	0.01240	26.8	67.2	<0.002	2.12	<0.002	5.790	<0.002	1.22	305	1.190
		4/28/2003	0.01210	19.5	67.6	<0.001	<5	<0.002	6.940	<0.002	1.33	310	1.190
		4/15/2004	0.01200	34.9	73.7	<0.001	2.63	<0.002	6.030	<0.002	1.32	304	1.181
		5/19/2005	0.01400	23.2	70.9	<0.001	2.04	<0.002	6.030	<0.002	1.37	322	1.389
		5/31/1991	0.01000	31.8	139	<0.006	5.8	<0.006	19.700	<0.050	3.26	652.1	1.580
MRI DDH-03	4563	5/29/1992	0.03800	33.92	139	<0.001	11.4	<0.002	25.910	0.0012	3.21	654.3	1.691
		8/31/1994	0.00340	46.3	76.1	<0.002	17.5	0.002	0.010	<0.002	0.063	350	0.002
		1/3/2001	0.03750	0	180	<0.002	5.2	<0.010	40.100	<0.010	6.39	960.1	5.830
		4/18/2003	0.03590	0	180	<0.002	5.4	<0.002	49.200	0.00223	6.4	905	7.291
		5/8/2005	0.04740	0	188	<0.001	4.61	<0.002	47.500	<0.002	6.28	920	7.520
MRI DDH-08	4607	11/15/2006	0.04420	0	207	<0.001	4.84	<0.002	46.200	<0.002	6.47	1017	5.456

Table IA.
Ground Water Analytical Data
Upper Silver Bow Creek Drainage

GWIC Well Name	GWIC ID	Date	Arsenic (mg/l)	HCO3 (mg/l)	Calcium (mg/l)	Cadmium (mg/l)	Chloride (mg/l)	Copper (mg/l)	Iron (mg/l)	Lead (mg/l)	Manganese (mg/l)	Sulfate (mg/l)	Zinc (mg/l)
MRI-BMF * SARSFIELD SHAFT	139285	1/5/1994	0.00440	125	212	0.0052	10.3	0.027	1.83	<0.002	2.64	562	1.120
MRI-BMF 97-1	166372	11/18/1999	<0.50000	0	418	3.43	58.51	176,000	854,000	0.0428	401	11725	1110,000
MRI-BMF 97-2	166373	11/18/1999	<0.50000	0	410	4.27	79.41	268,000	1260,000	<0.002	491	19921	1220,000
MRI-BMF97-3	166374	11/18/1999	<0.50000	0	410	5.87	56.7	221,000	24,600	0.0276	1020	14749	955,000
MRI-BMF 97-4	166375	11/17/1999	<0.50000	0	408	3.67	55.94	120,000	61,200	<0.016	231	6459.4	372,000
MT Tech Well-1	892116	7/19/1990	0.00270	185	167	<0.005	13.2	0.008	0.210		0.521	392	0.018
		4/20/2000	0.00169	296.2	172	<0.002	24.5	<0.002	<0.05	<0.002	0.047	317	0.093
		5/6/2003	0.00170	234.7	144	<0.001	19.6	0.006	0.108	0.00238	0.163	278	0.263
		6/8/2005	0.00168	254	137	<0.001	19.7	0.006	0.053	<0.002	0.109	240	0.237
MW-3S-E	185940	2/15/2001	0.01050			<0.002		0.002		<0.002			0.069
MW-3S-W	185939	2/15/2001	0.00204			0.00589		0.558		0.00243			1.570
Neary, P & J	153761	7/1/1996	0.00450	100.5	58.8	<0.002	17	0.004	0.008	0.0065	0.019	95.5	0.022
OFARRELL GARY * WELL MT98-2	168177	9/4/1998	0.00164	224.9	87.18	<0.002	21.3	0.003	0.017	<0.002	0.321	139.4	<0.002
OFARRELL GARY * WELL MT98-3	168178	9/4/1998	0.00150	190.8	60	<0.002	20.6	<0.002	<.005	<0.002	0.003	120.1	<0.002
OPHIR SHAFT	142793	9/1/1994	0.05060	309	152.8	<0.002	30	<0.002	10.2	<0.002	21.9	310	0.003
		7/25/1997	0.01710	244	146.2	<0.002	38.3	0.002	3.11	<0.002	21.5	406	0.581
		6/25/2001	0.01560	275.2	124	<0.002	34.2	<0.002	3.33	<0.002	14.3	281	0.261
		4/8/2003	0.00280	218.1	110	0.00517	38.7	0.005	0.323	<0.002	11.2	240.1	1.800
		4/22/2004	0.00540	234.9	114	0.00425	41.9	<0.002	0.999	<0.002	13.5	231	0.845
		6/2/2005	0.00362	241	101	<0.001	23.7	0.003	1.52	<0.002	7.96	187	0.010
		4/19/2006	0.01140	222	88.6	<0.001	22.1	<0.002	3.8	<0.002	6.6	164	0.004
ORPHAN BOY MINE	4822	4/24/2007	0.00919	233.3	95	<0.0001	28	<0.020	3.16	0.00038	6.82	189	0.008
		5/28/1987	0.09000	905	310	<0.002	14.5	0.012	0.25	<0.040	8.84	702	0.010
		6/25/1987	0.01800		311	<0.002		<0.002	0.27		8.18		0.022
		5/31/1988	0.01200	939	309	<0.002	14.5	<0.002	0.57		7.67	638	0.029
		6/29/1988	0.17500	915	313	<0.002	14.5	<0.002	0.46	<0.040	8.04	648	0.046
		1/18/1989	0.00610	854	307	<0.005	14.5	<0.004	0.244	0.05	7.281	587	0.024
		5/10/2005	0.00637	931	232	<0.001	15.5	<0.002	0.077	<0.002	5.01	284	<0.002
PILOT BUTTE MINE * BUTTE MT	139286	12/22/2005	0.00690	976.9	223	<0.001	15.3	<0.002	0.075	<0.002	4.6	280	0.014
		4/19/2006	0.00509	845.1	223	<0.001	14.6	<0.002	0.217	<0.002	4.61	260	0.015
		10/25/2006	<0.00500	835	233	<0.001	16.5	<0.005	0.083	<0.010	5.87	302	0.011
		1/17/2006	0.04700	780.2	217	<0.001	17.5	<0.005	0.186	<0.010	4.41	303	0.010
		1/17/2006	0.04860		237	<0.001		0.006	0.823	0.17	4.32		0.324
PANION RUDOLPH J * WELL MT98-1	168176	9/4/1998	0.00300	105.9	37.4	<0.002	24.1	0.005	<.005	<0.002	0.228	76.8	0.403
PIERCE GARY	4819	11/1/1988	0.00050	257.7	206	<0.002	42.1	0.011	0.011	<0.040	0.019	514	0.545
Poore, R	50356	12/8/1993	1.24000	174	527	<0.004	<2.	0.058	93.5	0.0054	296	3098	79.150
		3/28/2000	0.48000	0	489	<0.010	17.827	0.079	90.1	<0.010	390	3393.7	79.800
		6/10/2005	0.25100	69.8	515	<0.005	8.5	0.031	49.6	<0.010	184	2666	31.974
		7/16/1993	0.00450	167	81.7	<0.002	13.1	0.018	<0.003	<0.002	<0.002	147	0.070
POWERS MARK * 93-126	128065	7/27/1993	0.03300	188	33.9	<0.002	7.8	<0.002	0.078	<0.002	0.028	25.7	0.020
REAP KENNETH * 93-213	50452	11/30/1993	0.00120	131.03	315	<0.002	33.72	0.004	1.73	<0.002	0.743	1038	0.094
Riley, R	50058	7/14/1993	<0.00100	96.9	34.1	<0.002	1.9	0.017	<0.003	<0.002	<0.002	60.8	0.050
Schonberg, Val	50032	7/14/1993	<0.00100	59.5	39.4	<0.002	10.2	0.021	0.028	<0.002	0.002	83.3	0.196
SCOTT DARRYL	122652	7/31/1991	0.00050	117.1	36.1	0.007	10.2	<0.006	0.134	0.06	0.016	38.3	0.009

Table IA.
Ground Water Analytical Data
Upper Silver Bow Creek Drainage

GWIC Well Name	GWIC ID	Date	Arsenic (mg/L)	HCO3 (mg/l)	Calcium (mg/l)	Cadmium (mg/l)	Chloride (mg/l)	Copper (mg/l)	Iron (mg/l)	Lead (mg/l)	Manganese (mg/l)	Sulfate (mg/l)	Zinc (mg/l)
STEWARD MINE * AMC * BUTTE MT	4765	7/28/1983	0.11300	0	464	0.17	37.3	11,500	150	0.18	42.9	2450	254,000
		11/11/1983	0.00900	0	458	0.2	43.5	11,700	11.1	0.1	38.6	1900	140,000
		4/26/1984	0.02750		342	0.14		12,800	5.08		27		109,000
		7/26/1984	0.09700	23.9	378	0.14	29.5	7,680	17.9		33.1	1520	110,000
		10/18/1984	0.05500	63.2	290	0.16	33.3	8,530	8.76		17.3	1080	77,100
		5/30/1985	0.01500	1.6	134	0.089	11.3	4,680	2.74		5.97	514	37,000
		10/31/1985	0.02100	0	369	0.2	32	10,000	58.3		27	1670	126,000
		2/27/1986	0.02100	0	362	0.14	32.7	8,050	20.7		21.4	1560	93,500
		5/29/1986	0.00260	0	381	0.15	45.9	8,230	27.6		22.2	1605	88,000
		6/26/1986	0.06800	40.7	345	0.14	42.6	5,140	21.3		13.7	1258	72,100
		7/31/1986	0.05700	74.4	290	0.21	41.3	8,140	8.41		10.6	1010	75,200
		9/26/1986	0.08800	98.8	336	0.12	36.9	2,400	18.5		15.1	1176	71,900
		6/25/1987	0.03900	89.8	275	0.132	41.1	4,820	5.43		9.27	936	55,600
		5/31/1988	1.66600	168.8	489	0.014	39.2	0.510	298		42.5	2610	93,700
		6/29/1988	1.90000	142	481	0.027	38.7	0.550	329	0.13	45.8	2650	103,000
		7/28/1988	2.29000	109.6	503	0.12	38.6	0.490	334	1.32	46.1	2720	10,300
		9/29/1988	1.62800	45.4	497	0.058	38.9	0.360	261	0.08	39.4	2370	90,900
		10/27/1988	1.60200		483	0.015		0.446	249	0.040	39.3		87,000
		11/30/1988	1.53700	180.6	487	0.022	39	0.220	241	0.07	39.6	2360	87,900
		2/27/1989	1.52000	186.2	484	0.04	36.7	0.280	236	0.055	38	2310	81,800
		3/30/1989	1.14500	144.5	473	0.07	40.1	0.730	209	0.066	38.4	2460	94,000
		4/26/1989	1.20800	31.3	467	0.075	37.7	0.610	183	0.11	35.6	2380	95,400
		8/4/1989	1.52800	0	492	0.087	39.6	1,580	196	<0.040	41.4	2740	104,300
		10/31/1989	1.35700		492	0.078	37.4	1,250	194	0.08	41.3	2580	112,000
		12/28/1989	1.45500		500	<0.005	36.7	0.790	206	0.08	40.1	2650	94,300
		5/1/1990	1.17000	138	498	<0.005	36.4	0.645	189	0.12	37.15	2450	77,800
		10/13/1992	1.73000	92	414	0.39	53.7	9,600	245	0.0272	35.8	2493	210,000
		12/21/1992	1.62600	98.3	462	0.375	62.3	9,600	225.6	<0.008	36.8	2343	211,000
		4/7/1993	1.74400	83	472	0.352	39	8,970	242	<0.010	33.26	2200	181,000
		10/27/1995	0.25600	45.1	398.4	0.1573	50	4,503	34.6	<0.002	17.7	1600	117,000
		4/11/1996	2.34300	32.5	507	0.5	81.6	3,180	285	0.0069	37.4	3100	283,000
		3/9/2000	0.59500	178.12	428	0.0537	40,186	0.197	146	<0.002	28.3	2105.9	119,000
		3/9/2000	0.04730	97.6	331	0.0223	34,197	0.017	<.05	<0.002	11.4	1088.5	34,600
		4/8/2003	2.65000	72	520	<0.010	39.5	0.078	263	<0.010	34	2519	80,200
		1/9/2004	2.80200	212.3	519	0.0179	42.8	0.063	247	<0.020	33	2399	71,772
		4/27/2004	3.65900	76.9	533	0.0352	38.8	0.062	315	<0.010	38	3074	76,465
		10/22/2004	3.78100	20.7	531	<0.005	37.8	0.050	256	<0.010	33.3	2472	64,679
		6/9/2005	3.81200	300.9	541	<0.005	33.7	0.045	257	<0.010	33.3	2492	52,969
		6/9/2005	3.86000	290.8	527	<0.005	34.7	0.035	259	<0.010	32.6	2451	51,865
		4/21/2006	3.44800	100.5	509	<0.005	34.9	0.028	256	<0.010	30.8	2388	47,294
		4/21/2006	3.41400	160	518	<0.005	34.7	0.025	254	<0.010	31	2370	47,222
		5/2/2007	1.91300	22.7	489	0.00207	38	0.053	255	<0.001	33.4	2455	48,820
		5/2/2007	2.31200	74.8	476	0.00218	38.8	0.040	262	<0.001	33.8	2545	49,631
TOURIKIS WILLIAM * 93-18	50045	7/13/1993	<0.00100	89.8	86.3	<0.002	18.5	0.011	<.003	<0.002	0.002	216	0.031
		9/11/1998	0.00820	116.4	47.92	<0.002	19.3	0.004	0.1202	<0.002	0.0988	212.6	0.083
TOWN PUMP * 93-96	123304	7/22/1993	0.00130	251	134	<0.002	54.2	0.012	<.003	<0.002	0.004	235	0.008
		8/23/2001	<0.00100		40.2	<0.002		<0.002	1.83	<0.002	0.182		<0.002
		8/20/2002		217.4	128	<0.001	80	<0.005	0.593		0.026	199	0.004

Table IA.
Ground Water Analytical Data
Upper Silver Bow Creek Drainage

GWIC Well Name	GWIC ID	Date	Arsenic (mg/l)	HCO3 (mg/l)	Calcium (mg/l)	Cadmium (mg/l)	Chloride (mg/l)	Copper (mg/l)	Iron (mg/l)	Lead (mg/l)	Manganese (mg/l)	Sulfate (mg/l)	Zinc (mg/l)
TRAVONA MINE	4782	1/1/1980	0.15900										
		4/28/1983	0.09700	299	134	<0.002	41.4	0.024	1.25	<0.040	2.15	372	0.081
		10/13/1983	0.08000	303	126	<0.002	44.9	0.015	1.11	<0.040	2.2	344	0.041
		2/16/1984	0.07800	295.7	141	<0.002	35.6	0.030	2.51	<0.040	2.64	391	0.098
		4/26/1984	0.07650		146	<0.002		0.050	1.95		2.49		0.240
		7/26/1984	0.09300	324	143	<0.002	33.2	0.069	1.84		2.64	352	0.081
		10/18/1984	0.12500	314	142	<0.002	41.6	0.062	2.99		3.35	365	0.074
		10/31/1985	0.10100	332	147	<0.002	40	0.004	2.29		3.39	381	0.036
		10/31/1985	0.09100	331	147	<0.002	40.1	0.002	3.14		3.45	380	0.140
		5/29/1986	0.07470	348	137	<0.002	39.9	<0.002	1.6		3.43	335	0.055
		6/26/1986	0.09600	330	142	0.003	41.5	0.007	2.29		3.45	375	0.230
		7/31/1986	0.09900	333	141	<0.002	38.3	<0.002	1.71		3.54	349	<0.004
		9/26/1986	0.18700	350	154	<0.002	37.6	<0.002	3.34		5.96	394	0.120
		6/25/1987	0.17900	293.3	187	<0.002	35.7	0.006	8.65		28.3	624	0.160
		7/31/1987	0.17500	315	185	<0.002	34.7	<0.002	8.82	<0.040	28.8	573	0.190
		9/28/1987	0.17700	302	191	<0.002	35.1	0.009	8.17	<0.040	26	602	0.093
		10/30/1987	0.15000	290.8	194	<0.002	34.3	0.003	8.18	<0.040	25.7	614	0.120
		1/27/1988	0.13800	302	207	<0.002	33	<0.002	8.17	<0.040	28.3	658	0.063
		3/29/1988	0.16400	281.4	197	<0.002	35.7	<0.002	7.72	<0.040	24.3	615	0.113
		5/31/1988	0.12200	364	198	<0.002	35.8	0.006	7.62		20.1	569	0.160
		6/3/1988	0.18500	312	195	<0.002	36.7	0.009	7.69		19.4	585	0.038
		6/3/1988	0.17500	305	191	<0.002	36.4	0.002	7.41		19.1	580	0.028
		6/3/1988	0.17000	336	196	<0.002	35.8	0.010	7.63		19.4	573	0.028
		6/3/1988	0.20900	329	201	<0.002	35.8	0.002	8.44		21.1	596	0.009
		6/29/1988	0.15100	302	191	<0.002	36.3	0.005	7.03	<0.040	18.5	592	0.120
		7/28/1988	0.15800	310	186	<0.002	37	0.005	6.52	<0.040	16.5	570	0.093
		9/29/1988	0.17800	298.7	179	<0.002	37.1	<0.002	6.69	<0.040	16.2	532	0.071
		10/27/1988	0.16200		174	<0.002		0.004	6.61	<0.040	16.3		0.083
		11/30/1988	0.14300	354	187	<0.002	35.9	0.002	6.97	<0.040	17.5	528	0.009
		11/30/1988	0.14400	351	184	<0.002	36.6	0.002	6.8	<0.040	17.3	525	0.017
		12/19/1988	0.14400	345	184	<0.002	34.4	0.006	6.71	<0.040	18.2	332	0.021
		12/19/1988	0.17300		189	<0.002		0.012	7.07	<0.040	18.5		0.065
		12/19/1988	0.12800	346	186	<0.002	33.8	0.008	6.85	<0.040	18.5	535	0.023
		12/20/1988	0.13100	346	185	<0.002	34.5	0.006	6.81	<0.040	18.6	537	0.023
		12/20/1988	0.12700	361	189	0.008	34.4	0.008	7.2	<0.040	19.6	542	0.019
		12/20/1988	0.17700		188	0.002		0.012	7.08	<0.040	18.4		0.064
		1/6/1989	0.17400		190	0.004		<0.002	6.75	0.09	19.1		0.053
		1/11/1989	0.04100		635	0.006		0.032	0.039	<0.040	18.7		0.190
		1/11/1989	0.03700		797	0.009		0.045	0.018	<0.041	18.7		0.100
		1/11/1989	0.00280		3	<0.002		0.011	0.011	<0.040	0.15		0.009
		1/25/1989	0.16800	321	182	0.004	35.2	0.004	3.74	<0.004	17	546	0.012
		1/25/1989	0.17300		185	<0.002		<0.002	6.5	0.004	16.5		0.048
		1/25/1989	0.09900	324	182	<0.002	34.7	<0.002	6.61	0.009	16.5	539	0.043
TRAVONA MINE		1/26/1989	0.11600	321	184	0.002	34.7	<0.002	6.76	0.006	16.7	547	0.013
		1/26/1989	0.13800	325	183	<0.002	34.2	<0.002	6.66	0.012	16.7	539	0.013
		1/26/1989	0.16000		181	0.006		<0.002	6.66	0.016	17		0.043
		1/26/1989	0.11900	322	183	<0.002	34.4	<0.002	6.65	0.005	16.8	539	0.009
		1/26/1989	0.19100		192	<0.002		0.002	7.17	0.016	18.1		0.045
		1/27/1989	0.00040	1.7	0.1	0.003	1.3	0.004	0.006	<0.004	0.009	2.2	0.003
		1/27/1989	<0.00100		<1	<0.002		<0.002	0.048	<0.004	0.002		<0.003
		1/27/1989	0.11800	333	184	<0.002	33.4	<0.002	6.82	0.007	17.1	538	0.011
		1/27/1989	0.18200		175	0.003		<0.002	6.58	0.008	16.7		0.039
		1/27/1989	0.14700	325	184	<0.002	34.5	<0.002	6.83	0.015	17.3	538	0.010
		1/27/1989	0.16200		186	<0.002		<0.002	6.85	0.023	17.5		0.054
		1/27/1989	0.12200	331	183	<0.002	34.7	<0.002	6.83	0.012	17.2	542	0.010
		1/28/1989	0.13400	328	183	<0.002	34.1	<0.002	6.86	0.014	17.3	537	0.012
		1/28/1989	0.13500	326	186	<0.002	34.1	<0.002	6.96	0.012	17.7	542	0.008
		1/28/1989	0.16600		187	0.004		<0.002	6.97	0.011	17.7		0.052
		1/28/1989	0.11700	329	183	0.002	34.9	<0.002	6.87	0.016	17.4	542	0.011
		1/29/1989	0.11000	335	182	0.002	34.6	<0.002	6.85	0.015	17.3	537	0.007
		1/29/1989	0.15700	328	187	<0.002	35.3	<0.002	6.9	0.008	17.7	541	0.012
		1/29/1989	0.16800		186	0.004		<0.002	6.8	0.014	17.5		0.056
		1/29/1989	0.12000	328	185	<0.002	33.8	<0.002	6.8	0.009	17.5	528	0.012
		1/30/1989	0.12100	344	187	0.006	34.5	0.006	6.96	0.013	17.4	535	0.014
		1/30/1989	0.18300		188	<0.002		<0.002	7.02	0.02	17.8		0.052
		1/30/1989	0.11200	321	187	0.004	35.2	<0.002	6.8	0.026	17.7	548	0.014
		1/31/1989	0.11500	324	188	0.002	34.8	<0.002	6.8	0.025	17.8	548	0.016
		1/31/1989	0.13100	324	183	<0.002	35.2	<0.002	6.62	0.013	17.4	538	0.011
		1/31/1989	0.16900		187	0.005		<0.002	6.77	0.014	17.8		0.055
		1/31/1989	0.12300	330	182	<0.002	35.1	<0.002	6.61	0.01	17.1	542	0.010
		2/1/1989	0.11000	321	186	<0.002	35.1	<0.002	6.7	0.009	17.5	539	0.014
		2/1/1989	0.13700	316	184	<0.002	35.7	<0.002	6.53	0.017	17.4	552	0.018
		2/1/1989	0.20400		195	<0.002		<0.002	7.16	0.024	18.5		0.056
		2/1/1989	0.11600	319	182	<0.002	35.5	<0.002	6.53	0.02	17.2	552	0.017
		2/2/1989	0.12600	319	182	<0.002	35.3	<0.002	6.67	0.006	17.7	548	0.012
		2/2/1989	0.17900		188	<0.001		0.003	6.8	0.021	18.1		0.059
		2/2/1989	0.13800	319	185	<0.002	35.5	<0.002	6.78	0.019	18	555	0.018
		2/2/1989	0.19300		188	<0.002		<0.002	6.88	0.018	18.2		

Table IA.
Ground Water Analytical Data
Upper Silver Bow Creek Drainage

GWIC Well Name	GWIC ID	Date	Arsenic (mg/l)	HCO3 (mg/l)	Calcium (mg/l)	Cadmium (mg/l)	Chloride (mg/l)	Copper (mg/l)	Iron (mg/l)	Lead (mg/l)	Manganese (mg/l)	Sulfate (mg/l)	Zinc (mg/l)
TRAVONA MINE	4782	2/4/1989	0.12700	317	190	<0.002	35.1	<0.002	8.25	0.013	19.8	579	0.007
		2/4/1989	0.15800	320	189	<0.002	34.9	<0.002	8.14	0.006	20.1	576	0.011
		2/4/1989	0.20200		194	<0.002		0.004	8.43	0.021	20.2		0.047
		2/4/1989	0.12900	325	192	<0.002	35.9	<0.002	8.43	0.021	20.2	583	0.011
		2/5/1989	0.12800	325	191	<0.002	35.1	<0.002	8.36	0.011	20.1	577	0.009
		2/5/1989	0.14000	309.4	191	<0.002	34.7	<0.002	8.34	0.012	19.8	582	0.007
		2/5/1989	0.18300		194	0.005		0.004	8.61	0.014	20		0.075
		2/5/1989	0.12400	315	191	<0.002	34.1	<0.002	8.2	0.007	19.6	573	0.018
		2/6/1989	0.10900	323.5	192	<0.002	34.9	<0.002	8.29	0.015	19.8	580	0.010
		2/6/1989	0.14500	318	191	<0.002	33.8	<0.002	8.23	0.009	19.6	570	0.008
		2/6/1989	0.18300		194	0.004		0.005	8.3	0.015	19.6		0.049
		2/6/1989	0.12600	321	192	<0.002	33.5	<0.002	8.21	0.012	19.9	567	0.005
		2/7/1989	0.00010	<.1	0.2	<0.002	0.1	<0.002	<.002	<0.004	0.023	0.2	<0.003
		2/7/1989	0.00010		<.1	<0.002		<0.002	0.006	<0.004	<.001		0.003
		2/7/1989	0.11200	317	190	<0.002	34.2	<0.002	8.11	0.012	19.3	579	0.006
		2/7/1989	0.14400	327	191	0.003	34.6	<0.002	8.18	0.011	19.6	568	0.004
		2/7/1989	0.18000		196	0.004		0.003	8.37	0.013	20.2		0.054
		2/7/1989	0.11700	327	191	<0.002	34.6	<0.002	8.12	0.01	19.5	568	<0.003
		2/8/1989	0.10200	329	192	<0.002	34.5	<0.002	8.18	0.008	19.6	570	0.005
		2/8/1989	0.11700	325	194	<0.002	36	<0.002	8.18	0.008	19.7	576	0.006
		2/8/1989	0.16800		198	0.003		0.003	8.34	0.023	19.7		0.054
		2/8/1989	0.13700	327	197	<0.002	34.3	<0.002	8.3	0.011	19.7	580	0.006
		2/9/1989	0.11600	328	194	<0.002	34.8	<0.002	8.15	0.011	19.6	582	0.006
		2/9/1989	0.11300	324	192	<0.002	35.4	<0.002	8.03	0.012	19.1	580	0.005
		2/9/1989	0.19100		194	<0.002		0.005	8.32	0.013	19.5		0.061
		2/9/1989	0.10800	329	191	<0.002	35.3	<0.002	7.95	0.012	18.9	578	0.006
		2/10/1989	0.12600	327	191	<0.002	35.3	<0.002	7.9	0.009	18.7	580	0.006
		2/10/1989	0.10300	327	193	<0.002	34.4	<0.002	7.96	0.009	19	580	0.014
		2/10/1989	0.15500	328	196	0.002	35.7	<0.002	8.1	0.013	19.5	585	0.017
		2/10/1989	0.18900		194	<0.002		0.016	7.9	0.014	19.1		0.066
		2/10/1989	0.14700	331.8	195	<0.002	35.2	<0.002	8	0.012	19.2	582	<0.003
		2/11/1989	0.13300	333	195	<0.002	35.7	<0.002	7.97	0.011	19.1	588	0.003
		2/11/1989	0.13600	326	194	<0.002	34.7	<0.002	7.91	<0.004	19.1	586	<0.003
		2/11/1989	0.18500		194	<0.002		0.003	7.85	0.017	18.8		0.061
		2/11/1989	0.11400	326	194	<0.002	35.6	<0.002	7.85	0.005	19	583	0.003
		2/12/1989	0.11500	329	193	<0.002	35.4	<0.002	7.79	0.007	18.8	579	0.003
		2/12/1989	0.14300	331	194	<0.002	34.7	<0.002	7.8	0.006	18.8	569	0.005
		2/12/1989	0.18900		196	0.002		0.008	7.9	0.006	18.8		0.074
		2/12/1989	0.10700	328	194	<0.002	35.9	<0.002	7.79	0.01	18.8	577	0.004
		2/13/1989	0.11400	324	193	<0.002	36.6	<0.002	7.74	0.008	18.5	581	0.005
		2/13/1989	0.12400	331	207	<0.002	35	<0.002	7.43	<0.004	18.8	577	0.004
		2/13/1989	0.18000		209	<0.002		0.008	7.51	0.014	19.4		0.061
		2/13/1989	0.11700	334	205	<0.002	35.3	<0.002	7.28	<0.004	18.7	576	0.003
		2/14/1989	0.12200	335	206	0.004	35.1	0.002	7.35	0.01	18.6	576	<0.003
		2/14/1989	0.00050		12	0.002		0.002	0.006	<0.004	0.83		0.006
		2/14/1989	0.00210		126	0.002		<0.002	<.002	<0.004	5.93		<0.003
		2/14/1989	0.00050		6.4	<0.002		0.004	0.003	0.004	0.5		0.004
		2/14/1989	0.00090		7.6	0.005		0.003	0.015	<0.004	0.52		0.006

Table IA.
Ground Water Analytical Data
Upper Silver Bow Creek Drainage

GWIC Well Name	GWIC ID	Date	Arsenic (mg/l)	HCO3 (mg/l)	Calcium (mg/l)	Cadmium (mg/l)	Chloride (mg/l)	Copper (mg/l)	Iron (mg/l)	Lead (mg/l)	Manganese (mg/l)	Sulfate (mg/l)	Zinc (mg/l)
TRAVONA MINE		2/14/1989	0.00620		178	0.004		0.004	0.023	<0.004	8.38		0.005
		2/14/1989	0.12600	340	206	<0.002	35.2	<0.002	7.36	<0.004	18.6	572	0.004
		2/14/1989	0.20400		230	<0.002		0.017	8.25	<0.004	21.5		0.071
		2/14/1989	0.12800	338.7	207	<0.002	34.8	0.004	7.36	<0.004	18.6	570	0.005
		2/15/1989	0.14700	340	212	0.008	35.6	0.010	7.37	0.01	18.6	578	0.007
		2/15/1989	0.18600		209	<0.002		0.010	8.21	0.018	19.1		0.072
		2/15/1989	0.14800	328	207	<0.002	34.5	<0.002	7.25	0.01	18.4	575	0.007
		2/15/1989	0.19100		208	<0.002		0.006	7.35	0.015	19		0.064
		2/15/1989	0.12600	338	209	<0.002	35.5	0.003	7.3	0.01	18.6	577	0.008
		2/16/1989	0.13000	338	207	0.004	35.2	0.003	7.34	<0.004	18.5	579	0.005
		2/16/1989	0.11900	330	208	0.003	36.1	0.003	7.24	0.008	18.4	576	0.007
		2/16/1989	0.11300	333	208	<0.002	35.3	<0.002	7.2	0.009	18.4	580	0.006
		2/16/1989	0.16900		211	<0.002		<0.002	7.24	0.021	19.1		0.061
		2/16/1989	0.12800	335	206	<0.002	35.2	<0.002	7.13	0.01	18.1	580	0.006
		2/17/1989	0.13000	336	206	<0.002	35.4	<0.002	7.1	0.006	18	584	0.006
		2/17/1989	0.10300	332	202	<0.002	36.3	<0.002	7	0.01	18	567	0.004
		2/17/1989	0.17200		210	<0.002		0.002	7.21	0.02	19		0.062
		2/17/1989	0.10000	335	207	<0.002	35.8	<0.002	7.11	0.011	18.3	568	<0.003
		2/18/1989	0.10400	337	206	<0.002	34.8	0.002	7.06	0.007	18.2	567	0.003
		2/18/1989	0.11800	336	205	<0.002	36.4	<0.002	7.03	0.008	18.1	574	<0.003
		2/18/1989	0.17200		210	<0.002		0.021	7.17	0.029	18.7		0.071
		2/18/1989	0.11100	337	206	<0.002	36.1	<0.002	7.08	0.017	18.2	573	<0.003
		2/19/1989	0.10600	336	206	<0.002	35.3	<0.002	7.09	0.021	18.1	564	<0.003
		2/19/1989	0.09600	339	202	<0.002	36.3	<0.002	6.87	0.005	17.4	564	<0.003
		2/19/1989	0.16800		210	<0.002		<0.002	7.15	0.018	18.4		0.053
		2/19/1989	0.10400	337	201	<0.002	35.1	<0.002	6.88	0.007	17.3	565	<0.003
		2/20/1989	0.10600	337	200	<0.002	35.4	<0.002	6.83	0.004	17.1	558	<0.003
		2/20/1989	0.11700	328	198	<0.002	35.2	<0.002	6.71	0.009	16.8	560	<0.003
		2/20/1989	0.15200		203	<0.002		0.004	6.87	0.021	17.5		0.061
		2/20/1989	0.12000	336	199	<0.002	35	<0.002	6.72	0.005	16.8	555	<0.003
		2/20/1989	0.15200		206	0.002		0.004	6.91	0.018	17.6		0.064
		2/21/1989	0.12000	327	197	<0.002	35.8	<0.002	6.71	<0.004	16.6	561	<0.003
		2/21/1989	0.13800	327	201	<0.002	35.8	<0.002	6.73	0.012	16.5	558	<0.003
		2/21/1989	0.16400		207	<0.002		<0.002	6.93	0.017	17		0.059
		2/21/1989	0.10900	323	201	<0.002	35.5	<0.002	6.72	<0.004	16.4	561	0.003
		2/22/1989	0.11000	327	199	<0.002	35.1	<0.002	6.65	0.011	16.2	548	0.003
		2/22/1989	0.10800	326	204	0.003	35.2	<0.002	6.78	0.007	16.6	568	0.003
		2/22/1989	0.15900		206	<0.002		<0.002	6.84	0.009	16.8		0.048
		2/22/1989	0.11200	324	202	0.002	36	<0.002	6.78	<0.004	16.4	552	0.003
		2/22/1989	0.15500		201	<0.002	35.5	<0.002	6.64	0.007	16.3		0.049
		4/7/1989	0.08200	304	172	<0.002	38.1	0.002	1.47	<0.040	11.7	506	0.100
		4/7/1989	0.13400	309	171	<0.002	37.4	<0.002	4.29	<0.040	11.5	481	0.006
		4/14/1989	0.00060		17.5	0.003		0.003	<.002	<0.004	1.24		0.003
		4/14/1989	0.00260		162	0.002		0.003	0.004	0.005	7.5		0.003
		4/26/1989	0.14300	307	173	<0.002	36.2	0.004	4.28	<0.040	12.1	494	0.590
		8/9/1989	0.10600	322.1	179	<0.005	37.7	<0.004	4.64	<0.040	12.84	495	0.110
		11/28/1989	0.15700										
		11/28/1989	0.17100										
		11/28/1989	0.14000										
		11/28/1989	0.10800										

Table IA.
Ground Water Analytical Data
Upper Silver Bow Creek Drainage

GWIC Well Name	GWIC ID	Date	Arsenic (mg/l)	HCO3 (mg/l)	Calcium (mg/l)	Cadmium (mg/l)	Chloride (mg/l)	Copper (mg/l)	Iron (mg/l)	Lead (mg/l)	Manganese (mg/l)	Sulfate (mg/l)	Zinc (mg/l)
TRAVONA MINE	4782	11/28/1989	0.04800										
		11/28/1989	0.09400										
		11/28/1989	0.13600										
		12/5/1989	0.14800						0.004		4.55		
		12/5/1989	0.20100						0.003		6.35		
		12/5/1989	0.01900						<.004		8.09		
		12/5/1989	0.11700	186	<0.005			<0.004	3.39		12.25		0.037
		12/29/1989	0.18000	312	187	<0.005	35	0.008	5.583	<0.050	14.36	514	0.025
		1/16/1990	0.07400										
		1/16/1990	0.37700										
		1/16/1990	0.07900										
		1/16/1990	0.37900										
		1/17/1990	0.06700										
		1/17/1990	0.07500										
		2/3/1990	0.05800										
		2/7/1990	0.06000										
		2/22/1990	0.03600		67.18	<0.005		0.015	0.006	0.118	3.962		0.009
		2/22/1990	0.04100		75.01	<0.005		0.018	0.007	<0.050	4.525		0.015
		2/28/1990	0.15300	308	188	<0.005	38.3	0.005	6.106	<0.050	14.94	530	0.019
		4/25/1990	0.19200	307	186.7	<0.005	36.8	<0.004	5.92	<0.050	13.5	518	0.015
		12/17/1992	0.16700										
		12/17/1992	0.18800										
		10/27/1995	0.13980	346.5	193.2	<0.002	40	<0.002	2.95	<0.002	7.1	480	0.007
		12/9/1996	0.14160	327	176.5	<0.002	42.3	<0.002	2.76	<0.002	6.4	443	0.006
		2/14/1997	0.13470	335.7	198.1	<0.002	45.8	<0.002	3.7	<0.002	6.6	515.7	0.004
		12/30/1997	0.02490	123.6	141.5	<0.002	17.5	<0.002	1.006	<0.002	2.144	717	0.488
		1/1/2000	0.13100	331.4	182	<0.002	40.47	<0.002	2.03	<0.002	5.85	431.1	0.011
		6/8/2000	0.11600	314.8	173	<0.002	21.2	<0.002	1.77	<0.002	5.35	405	0.005
		12/27/2000	0.12400	327	170	<0.002	37.5	<0.002	1.88	<0.002	5.4	385	0.007
		6/21/2001	0.11800	366	170	<0.002	40.6	<0.002	1.82	<0.002	5.39	410	0.002
		4/8/2003	0.09650	375.8	178	<0.002	41.5	<0.010	1.89	<0.010	5.56	399.1	0.016
		4/22/2004	0.09650	334.9	180	<0.001	39.4	<0.002	1.57	<0.002	5.2	373	0.004
		5/11/2006	0.09100	362.7	182	<0.001	40.8	0.006	1.57	<0.002	5.83	384	0.145
		3/29/2007	0.08600	319.6	174	<0.0001	41.3	0.001	4.52	0.00454	6.38	374	0.017
WEIR JIM * 827 EVANS AVE * BUTTE MT	892039	4/24/1990	0.00080	98	26.49	<0.005	5.9	0.007	0.02	<0.050	0.012	16.8	0.020
Whitaker, R	127061	7/22/1983	0.00130	57.8	535	0.028	43.9	0.069	0.932	0.0041	51.3	2051	2.655
Wold, Gary	129263	7/15/1993	0.00110	187	63.4	<0.002	8.9	0.022	<.003	<0.002	<.002	85.9	0.006

Bold, highlighted, formatting denotes exceedance from the maximum contaminant level (MCL) allowed for drinking water.

All data represents dissolved concentrations unless noted under GWIC ID. "Total" refers to the total recoverable analytical method.

Blank cell denotes sample concentration not recorded.

Montana Pole Plant

2005 PCP Concentrations

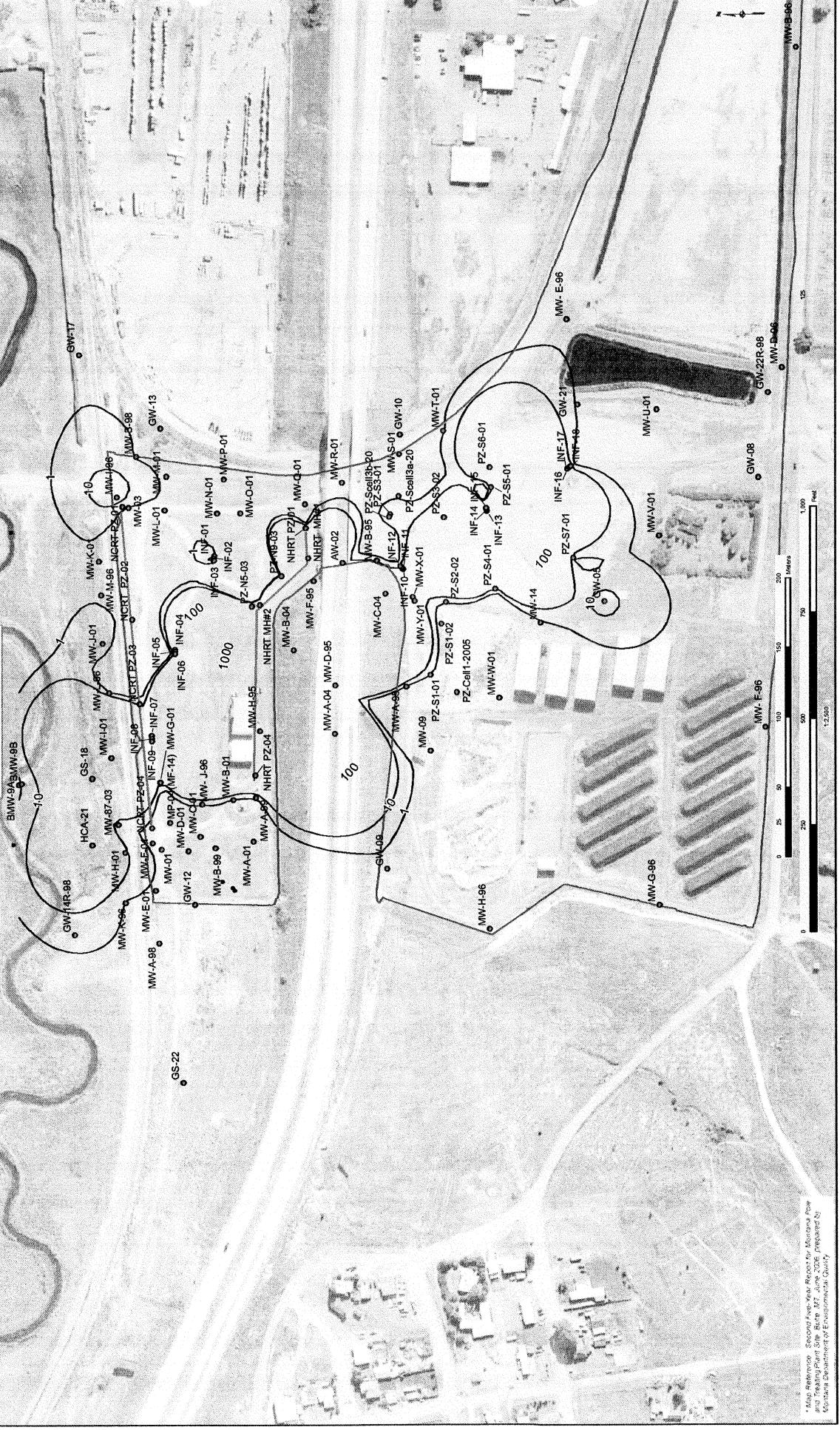


Table IB.
Ground Water Analytical Data
Montana Pole Treating Plant

Well Name	Flow Field Position	Date	PCP (ug/L)	Chlorophenols (ug/L)	PAH (ug/L)	DRO (ug/L)	Dioxin/Furans (ug/L)
MW-U-01	Upgradient of plume	8/13/2001	0.16				
		10/8/2001	<0.2				
		12/10/2001	<0.1				
		2/4/2002	<0.1				
		4/1/2002	<0.2				
		6/3/2002	<0.2				
		8/12/2002	<0.2				
		10/7/2002	<0.2				
		12/2/2002	0.4				
		2/3/2003	<0.04				
		4/7/2003	<0.040				
		6/2/2003	<0.040				
		8/4/2003	0.043				
		10/6/2003	<0.040				
		12/1/2003	<0.040				
		2/2/2004	<0.040				
		4/5/2004	0.042				
		6/7/2004	<0.04				
		8/2/2004	<0.04				
		2/7/2005	<0.040				
		8/1/2005	<0.040				
		2/6/2006	<0.1				
MW-Q-01	Upgradient of plume	8/13/2001	<0.1				
		10/8/2001	<0.2				
		12/10/2001	<0.1				
		2/4/2002	<0.1				
		4/1/2002	<0.2				
		6/3/2002	<0.2				
		8/12/2002	<0.2				
		10/7/2002	<0.2				
		12/2/2002	0.231				
		2/3/2003	<0.04				
		4/7/2003	<0.040				
		6/2/2003	<0.040				
		8/4/2003	<0.040				
		10/6/2003	<0.040				
		12/1/2003	0.039				
		2/2/2004	<0.040				
		4/5/2004	0.18				
		6/7/2004	0.042				
		8/2/2004	0.24				
		10/4/2004	0.4				
		12/6/2004	0.092				
		2/7/2005	<0.040				
		4/4/2005	0.26				
		6/6/2005	0.19				
		8/1/2005	<0.040				
		10/3/2005	<0.040				
		12/5/2005	<0.1				
		2/6/2006	<0.1				
MW-L-01	Upgradient of plume	8/13/2001	0.33				
		10/8/2001	0.631				
		12/10/2001	0.17				
		2/4/2002	<0.1				
		4/1/2002	0.2				
		6/3/2002	0.471				
		8/12/2002	<0.2				
		10/7/2002	<0.2				
		12/2/2002	0.471				
		2/3/2003	<0.02				
		4/7/2003	0.1				
		6/2/2003	0.052				
		8/4/2003	0.2				
		10/6/2003	0.086				
		12/1/2003	0.12				
		2/2/2004	<0.040				
		4/5/2004	0.14				
		6/7/2004	<0.04				
		8/2/2004	0.36				
		10/4/2004	0.29				
		12/6/2004	0.2				
		2/7/2005	<0.040				
		4/4/2005	0.32				
		6/6/2005	0.14				
		8/1/2005	<0.040				
		10/3/2005	<0.040				
		12/5/2005	<0.1				
		2/6/2006	<0.1				

Table 1B.
Ground Water Analytical Data
Montana Pole Treating Plant

Well Name	Flow Field Position	Date	PCP (ug/L)	Chlorophenols (ug/L.)	PAH (ug/L.)	DRO (ug/L.)	Dioxin/Furans (ug/L.)
MW-A-95	Downgradient Periphery of Plume	2/12/2001	385				
		4/2/2001	214				
		6/4/2001	263				
		8/13/2001	204				
		10/8/2001	113				
		12/10/2001	149				
		2/4/2002	146				
		4/1/2002	114				
		6/3/2002	126				
		8/12/2002	96				
		10/7/2002	105				
		12/2/2002	96.5				
		2/3/2003	62				
		4/7/2003	46				
		6/2/2003	41				
		8/4/2003	30				
		10/6/2003	21				
		12/1/2003	14				
		2/2/2004	12				
		4/5/2004	8.8				
		6/7/2004	7.4				
		8/2/2004	3.9				
		10/4/2004	3				
		12/6/2004	2.6				
		2/7/2005	1.2				
		4/4/2005	0.6				
		6/6/2005	0.39				
		8/1/2005	0.3				
		10/3/2005	0.21				
		12/5/2005	0.233				
		2/6/2006	0.308				
MW-A-99	Downgradient Periphery of Plume	4/2/2001	2.08				
		6/4/2001	0.243				
		8/13/2001	0.14				
		10/8/2001	0.911				
		12/10/2001	1.4				
		2/4/2002	1.2				
		4/1/2002	0.349				
		6/3/2002	0.83				
		8/12/2002	0.293				
		10/7/2002	0.424				
		12/2/2002	0.51				
		2/3/2003	0.08				
		4/7/2003	0.21				
		6/2/2003	0.25				
		8/4/2003	0.12				
		10/6/2003	0.12				
		12/1/2003	0.053				
		2/2/2004	0.049				
		4/5/2004	0.15				
		6/7/2004	0.13				
		8/2/2004	0.16				
		10/4/2004	0.3				
		12/6/2004	0.19				
		2/7/2005	0.17				
		4/4/2005	0.4				
		6/6/2005	0.53				
		8/1/2005	0.2				
		10/3/2005	0.19				
MW-E-01	Downgradient Periphery of Plume	8/13/2001	0.36	<10	<10		0.077
		10/8/2001	1.55				
		12/10/2001	0.28				
		2/4/2002	0.76	<10	<0.1	<300	0.59
		4/1/2002	0.9				
		6/3/2002	4.25				
		8/12/2002	0.608				0.21
		10/7/2002	0.558				
		12/2/2002	0.628				
		2/3/2003	0.074	<10	<0.1	<300	0.083
		4/7/2003	0.087				
		6/2/2003	0.15				
		8/4/2003	0.054	<10	<10	<300	0.11
		10/6/2003	0.44				
		12/1/2003	0.11				
		2/2/2004	0.072	<10	<10	<300	0.53
		4/5/2004	0.21				
		6/7/2004	0.24				
		8/2/2004	0.16	<10	<0.2	<310	43.45
		10/4/2004	0.33				
		12/6/2004	1.1				
		2/7/2005	<0.040				
		4/4/2005	0.59				
		6/6/2005	0.34				
		8/1/2005	0.11	<10	<10	<300	2.695
		10/3/2005	0.25				
		2/6/2006	0.043				

Table IB.
Ground Water Analytical Data
Montana Pole Treating Plant

Well Name	Flow Field Position	Date	PCP (ug/L)	Chlorophenols (ug/L.)	PAH (ug/L.)	DRO (ug/L.)	Dioxin/Furans (ug/L.)
MW-K-01	Downgradient of Recovery System	8/13/2001	2.7				
		10/8/2001	29.6				
		12/10/2001	2.7				
		2/4/2002	1.4				
		4/1/2002	15.1				
		6/3/2002	17.4				
		8/12/2002	23.4				
		10/7/2002	17.2				
		12/2/2002	14.2				
		2/3/2003	1.7				
		4/7/2003	4.7				
		6/2/2003	2.2				
		8/4/2003	1				
		10/6/2003	0.86				
		12/1/2003	1.3				
		2/2/2004	3.5				
		4/5/2004	1.5				
		6/7/2004	0.52				
		8/2/2004	1.2				
		10/4/2004	1				
		12/6/2004	1.4				
		2/7/2005	1.1				
		4/4/2005	0.95				
		6/6/2005	1.1				
		8/1/2005	0.82				
		10/3/2005	0.88				
		12/5/2005	5.7				
		2/6/2006	9.3				
BMW-9A	Downgradient of Recovery System	8/4/2003	0.2				
		8/2/2004	0.15				
		8/1/2005	0.26				
HCA-21	Downgradient of Recovery System	8/13/2001	253				
		8/12/2002	165				
		8/4/2003	171				
		8/2/2004	*84				
		8/1/2005	57				
		2/6/2006	37.8				
GW-14R-98	Downgradient of Recovery System	2/12/2001	13.1				
		4/2/2001	16.1				
		6/4/2001	14.3				
		8/13/2001	4.4				
		10/8/2001	26.8				
		12/10/2001	2.1				
		2/4/2002	1.6				
		4/1/2002	32.5				
		6/3/2002	21.1				
		8/12/2002	35.4				
		10/7/2002	11.8				
		12/2/2002	24.4				
		2/3/2003	2.1				
		4/7/2003	2.6				
		6/2/2003	3.3				
		8/4/2003	3.1				
		10/6/2003	7				
		12/1/2003	3				
		2/2/2004	3.3				
		4/5/2004	3.2				
		6/7/2004	2.2				
		8/2/2004	4.6				
		10/4/2004	1.6				
		12/6/2004	1.3				
		2/7/2005	1.6				
		4/4/2005	1.1				
		6/6/2005	1.4				
		8/1/2005	4.2				
		10/3/2005	2.2				
		12/5/2005	37.5				
		2/6/2006	34.4				
INF-18	Beneath Plume	10/8/2001	0.926				
		12/10/2001	0.15				
		2/4/2002	0.17				
		4/1/2002	<0.2				
		8/12/2002	0.289				
		2/3/2003	<0.04				
		8/4/2003	<0.040				
		2/2/2004	0.044				
		8/2/2004	<0.04				
		2/7/2005	<0.040				
		8/1/2005	<0.040				
		2/6/2006	<0.1				

Table IB.
Ground Water Analytical Data
Montana Pole Treating Plant

Well Name	Flow Field Position	Date	PCP (ug/L)	Chlorophenols (ug/L)	PAH (ug/L)	DRO (ug/L)	Dioxin/Furans (ug/L)
INF-15	Beneath Plume	10/8/2001	0.379				
		12/10/2001	33				
		2/4/2002	<0.1				
		4/1/2002	<0.2				
		8/12/2002	0.674				
		2/3/2003	0.12				
		8/4/2003	0.19				
		2/2/2004	0.077				
		8/2/2004	<0.040				
		2/7/2005	<0.040				
		8/1/2005	0.068				
		2/6/2006	0.057				
INF-12	Beneath Plume	10/8/2001	40				
		12/10/2001	44				
		2/4/2002	62				
		4/1/2002	39.7				
		6/3/2002	106				
		8/12/2002	42.4				
		2/3/2003	0.9				
		8/4/2003	0.53				
		2/2/2004	0.85				
		8/2/2004	0.069				
		2/7/2005	0.1				
		8/1/2005	0.15				
		2/6/2006	0.119				
INF-06	Beneath Plume	2/12/2001	20.1				
		4/2/2001	12.1				
		6/4/2001	7.1				
		8/13/2001	9.9	<10	<10		3.831
		10/8/2001	22.5				
		12/10/2001	6.1				
		2/4/2002	5.1	<10	<0.1	<300	0.15
		8/12/2002	3.05				0.2
		2/3/2003	1.3	<10	<0.1	<300	ND
		8/4/2003	0.69	<10	<10	<300	0.049
		2/2/2004	0.95	<10	<10	<300	ND
		8/2/2004	0.58	<10	<0.2	<310	0.7
		2/7/2005	0.15				
		8/1/2005	0.22	<10	<10	<300	0.092
		2/6/2006	0.135				
MW-L-96	Beneath Plume	2/12/2001	1.39				
		4/2/2001	0.611				
		6/4/2001	<0.2				
		8/13/2001	2.3	<10	<10		0.021
		10/8/2001	<0.2				
		12/10/2001	0.19				
		2/4/2002	<0.1	<10	<0.1	<300	ND
		8/12/2002	<0.2				0.17
		2/3/2003	<0.04	<10	<0.1	<300	ND
		8/4/2003	<0.040	<10	<10	<300	ND
		2/2/2004	0.044	<10	<10	<300	ND
		8/2/2004	0.049	<10	<0.2	<310	ND
		2/7/2005	<0.040				
		8/1/2005	<0.040	<10	<10	<300	0.53
		2/6/2006	0.09				
Waynynen	Upgradient of plume	2001	0.13				
		2002	<0.2				
		2002	<0.1				
		2003	<0.040				
		2004	<0.040				
		2005	<0.040				
Town Pump #1	East of Land Treatment Unit	2001	0.14				
		2002	<0.2				
		2002	<0.1				
		2003	<0.040				
		2004	<0.040				
		2005	<0.040				
Town Pump #2	East of Land Treatment Unit	2001	0.2				
		2002	<0.2				
		2002	<0.1				
Bowler	North of plume	2001	0.12				
		2002	<0.2				
		2002	<0.1				
		2003	<0.040				
		2004	<0.040				
		2005	<0.040				
Hendrickson	Southeast of plume	2001	0.11				
		2002	<0.2				
		2002	<0.1				
		2003	<0.040				
		2004	<0.040				
		2005	<0.040				
Dixon (Rognstad)	North of Land Treatment Unit	2001	<0.1				
		2002	<0.2				
		2002	<0.1				
		2003	0.071				
		2004	<0.040				
		2005	<0.040				

Figures

Figures